C. B. P. & F. C.
Lib. Ref. 05
Recd. 11 JUL 1952
Ab. by
Date
Ab. articles: pp.

香川縣立農科大學

# 学術報告

第二卷　第二号

## 目　次

中條道夫：臺湾產金花蟲科（昆蟲綱—鞘翅目）の形態分類学的研究

I　頸長金花蟲亞科 …………………………………………… 71—120

昭和二十六年一月

香川縣立農科大學

Digitized by the Internet Archive
in 2025

https://archive.org/details/technical-bulletin-of-faculty-of-agriculture-kagawa-uni_1951-01_2_2

# A TAXONOMIC STUDY ON THE CHRYSOMELIDAE (INSECTA-COLEOPTERA) OF FORMOSA

## PART I SUBFAMILY CRIOCERINAE

By

**Michio CHÛJÔ**

(Entomological Laboratory)

## Subfamily CRIOCERINAE

**Criocérides** (**Crioceridae**) Lacordaire, Monogr. Phytoph. I (Mém. Soc. Roy. Sci. Liége, III), pp. 222-226 (1845). - Chapuis, in Lacordaire, Hist. Nat. Ins.: Gen. Col., X, p. 63 (1874).

**Crioceridae** C. G. Thomson, Skandinaviens Col., VIII, p.136 (1866). - Jacoby et Clavareau, in Wytsman, Gen. Ins., XXIII, Col.-Phytoph.: *Crioceridae*, p. 1 (1904).

**Criocerini** Weise, Naturg. Ins. Deutschlands, VI, p. 54 (1882). - Wickham, Canadian Ent., XXVIII, p. 73 (1896). - Everts, Col. Neerlandica, II, pp. 390 & 391 (1903). - Heyne et Taschenberg, Exot. Käf., pp. 245 & 246 (1908). - Reitter, Fauna Germanica, IV, pp. 74 & 79 (1912). - Kuhnt, Illustr. Best.-Tab. Käf. Deutschlands, pp. 801 & 817 (1913). - Schaufuss, in Calwer, Käferbuch, ed. 6, II, pp. 888 & 901, 1907-1916 (1913). - Scheerpeltz et Winkler, in Brohmer, etc., Tierwelt Mitteleuropas, V, ii, 2, p. XII-220 (1930).

**Criocerina** Fowler, Col. British Isls., IV, pp. 265 & 279 (1890).

**Criocerinae** Jacoby, Fauna Brit. India, incl. Ceylon and Burma: Col. II, Chrysom. 1, pp. 3 & 12 (1908). - Chûjô, Sylvia (Forest Club Quarterly, School of Agr. & Forest., Taihoku Imp. Univ., Taiwan), IV, 1, p. 19 (1933); Trans. Nat. Hist. Soc. Formosa, XXIV, 135, p. 519 (1934). - Gressitt, Lingnan Sci. Journ., XX, 2-4, pp. 275 & 295-296 (1942).

**Eupodinae** Joy, Pract. Handb. British Beetles, I, pp. 388 & 389 (1932) (pars).

**General characters (Figs. 1-7):** Body more or less elongate; head, antennae, underside and legs more or less finely pubescent, pronotum and elytra generally glabrous, but rarely the latter pubescent, scutellum finely pubescent or glabrous. Head (Figs. 1-3) exposed, frequently constricted on each side behind the eyes, the constrictions sometimes connected to each other by a transverse impression acrossing the dorsal surface and the bottom of each constriction often occupied by a deep groove (these constriction and groove are so-called as the "post-ocular constriction" and "post-ocular groove" respectively); inter-ocular area generally with a distinct X-shaped groove (so-called the "frontal groove") and the groove connected at each posterior end to the post-ocular constriction or post-ocular groove in some cases, but not so in other cases; orbital areae (the area between the inner margin of eye and frontal groove)

generally reticulate-punctate or rugose-punctate and the punctures bearing a pubecence in each centre; upper area of each antennal socket generally raised subtriangularly or subquadrately and called the "frontal tubercle;" clypeus nearly obtriangular or obpentagonal, with front margin straight or emarginate, somewhat raised medially on the dorsum, generally more or less pubescent-punctate. Mouth-parts (Figs. 1-4) placed at the anterior end of head; labrum transverse, with front corners rounded and front margin straight or gently emarginate or slightly rounded; mandibles robust, incurved, bi- or trifidate at the apex; maxillary palpi 4-segmented, with 1st segment small, 2nd and 3rd generally obconical or moniliform, 4th oval or oblong or conical, sometimes very strongly conical; ligula generally well chitinized, but rarely semimembranous or membranous, with front margin straight or gently emarginate and front corners rounded; mentum transverse, with front margin deeply emarginate; labial palpi 3-segmented, with 1st segment minute, 2nd obconical or nearly so, 3rd oval or oblong or elongate-conical. Eyes more or less prominent, oval or elliptical, with inner margin more or less emarginate at the middle, but sometimes entire. Antennae (Fig. 1) 11-segmented, widely separated to each other at the base, filiform, shorter than the total length of body, nearly half the length of body in many cases, often with widened and flattened terminal segments, but never serrate. Pronotum (Fig.1) subquadrate or subcylindrical, without lateral margins, frequently more or less strongly constricted on each side and forming a shallow or deep cavity at middle or near the base; dorsum transversely convex, frequently with a transverse impression near or a little beyond the basal margin, the impression so-called as the "ante-basal transverse impression" and terminates laterally into the lateral constriction, sometimes with another transverse impression which is also terminating lateraly into the lateral constriction just beyond the middle, the impression named as the "ante-median transverse impression" and often interrupted at the middle. Scutellum small, nearly obtrigonate or tongue-shaped. Elytra (Fig. 1) elongate, much wider at the base than pronotum, gently narrowed posteriorly or parallel-sided, often slightly constricted on each side at a little behind the anterior corner, rounded at the apex, completely covering the abdomen; dorsum convex, often shallowly or lightly depressed at a little below the base, generally regularly punctate-striate, more or less raised at each humeral area. Uuderside (Fig. 6): prosternum short; prosternal process, as a rule, very narrow or invisible between the fore-coxae, but in one genus (*Macrogonus* Jacoby) wide, in any case extending to the apices of pro-epimera, the latter touching to each other, thence acetabulae closed behind; 1st abdominal sternite, in most cases, much longer than any one of the others. Legs (Figs. 1 & 2) rather robust; femora more or less thickened; tibiae slender and armed with one or a pair of spur, or unarmed it; tarsi rather wide, with 3rd segment deeply bilobed; claws either fused at the base or separated, generally simple, but rarely appendiculate (Genus *Hemydacne* Jacoby) or bifidate (Genus *Psathyrocerus* Blanchard).

**Wing** (Fig. 6): *Cu2* simple, isolate; 2A long, ending near the posterior margin of the wing and very closely approached, but not connected, to 1A beyond the middle.

**Male genitalia** (Fig. 7): Median lobe well chitinized, tubular, curved, forming two arches at its ventral surface, with ventral edge of the median orifice rounded and slightly projecting beyond the dorsal edge, median foramen occupying the greater part of ventral

surface of the basal half. Tegmen well chitinized, consisting of a Y-shaped piece and dorsal part entirely membranous, with flattened semi-membranous tegminal strut (basal-piece), without any trace of the distal lobe.

**Range**: World-wide.

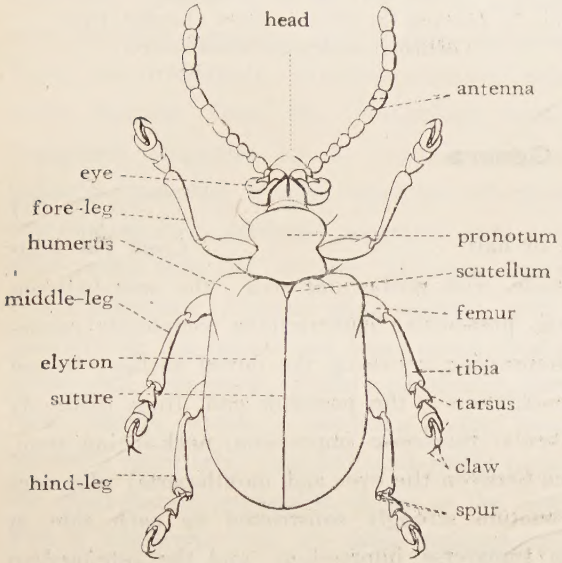


Fig. 1. *Lilioceris* (s. str.) *merdigera* (Linné), from Germany; dorsal aspect.

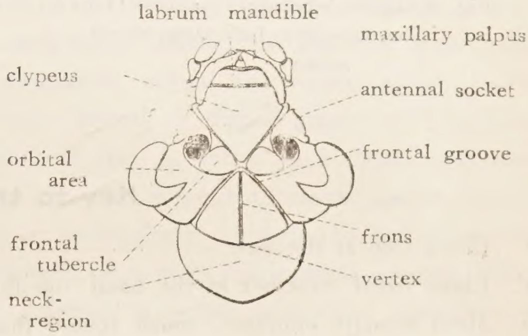


Fig. 3. *Lilioceris* (s. str.) *merdigera* (Linné), from Germany; Head; dorsal aspect.

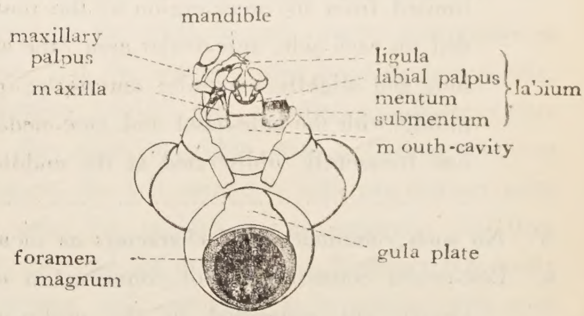


Fig. 4. *Lilioceris* (s. str.) *merdigera* (Linné), from Germany; Head; ventral aspect.

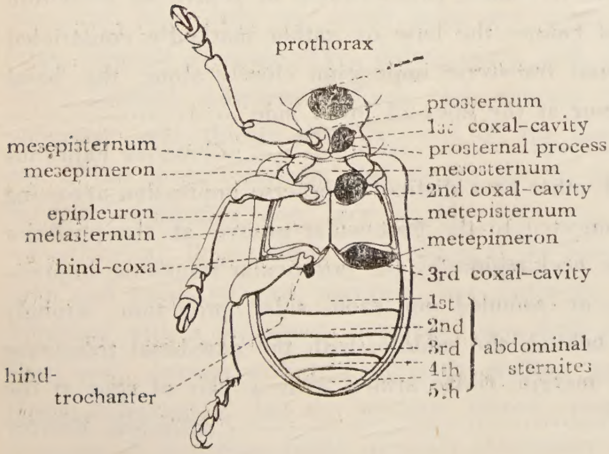


Fig. 2. *Lilioceris* (s. str.) *merdigera* (Linné), from Germany; ventral aspect, with head and left legs removed.

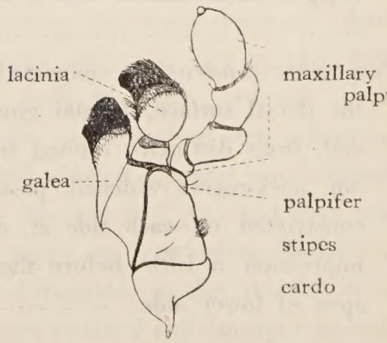


Fig. 5 *Lilioceris* (s. str.) *merdigera* (Linné), from Germany; Left maxilla, with maxillary palpus; ventral aspect.

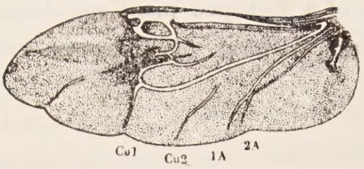


Fig. 6. *Lilioceris* (s. str.) *merdigera* (Linné,) from Germany; Left wing; dorsal aspect.

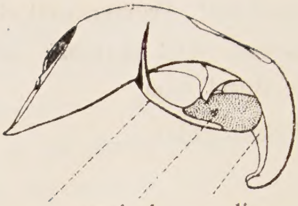


Fig. 7. *Lilioceris* (s. str.) *merdigera* (Linné), from Germany; Aedeagus; lateral aspect.

## Key to the Genera

a. Claws free at the base ........................................ (b)

a'. Claws fused together at the basal one-third or half ........................ *Lema* Fabricius

b. Head strongly elongate, much longer than wide, with post-ocular area (the area between the eyes and post-ocular constriction) long, post-ocular constrictions completely connected to each other by a deep transverse impression acrossing the dorsal surface, frontal groove not extending to the post-ocular constriction at the posterior end, frons distinctly limited from the neck-region by the post-ocular transverse impression, neck-region rounded on each side, ante-ocular area (the area between the eyes and mouth-parts) also very long and slightly narrowed anteriorly; pronotum strongly constricted on each side at middle,with the ante-basal and ante-median transverse impressions, and the ante-median one frequently obliterated at tht middle; tibiae unarmed the spur ........................................ *Mecoprosopus* gen. nov.

b'. No such combination of characters as in above ........................................ (c)

c. Post-ocular constrictions not connected to each other acrossing the dorsal surface, frontal groove not connected to the post-ocular groove at the posterior end, frons not distinctly limited from the neck-region, the latter parallel-sided or nearly so; pronotum slightly constricted on each side just before the base or rather markedly constricted near the base, with a shallow ante-basal transverse impression closely along the basal margin; tibiae armed with a single spur at the apex of lower side ........................................ *Crioceris* Fabricius

c'. Post-ocular constrictions connected to each other by a distinct transverse impression acrossing the dorsal surface, frontal groove connected to the post-ocular groove at the posterior end, frons distinctly limited from the neck-region by the post-ocular transverse impression, neck-region widened posteriorly or rounded on each side; pronotum strongly constricted on each side at, or just behind, the middle, with the ante-basal transverse impression a little before the basal margin; tibiae armed with a pair of spur at the apex of lower side ........................................ *Lilioceris* Reitter

## Genus Mecoprosopus, CHŪJÔ nov.

**Genotype:** *Mecoprosopus fulvus* Chû'ô, sp. nov.
**Range:** Formosa.

**General characters:** Body elongate, subparallel-sided; head, antennae, underside and legs finely pubescent; pronotum, scutellum and elytra glabrous.

Head very strongly elongate; post-ocular constriction very strong, completely united by a deep transverse groove acrossing the dorsal surface; neck-region subglobular, glabrous; post-ocular area distinctly elongate, very slightly narrowed posteriorly; orbital area rather narrow, rather finely and irregularly reticulate-punctate, pubescent; frontal X-shaped groove well marked, much distants from the post-ocular constriction at the posterior end; frons trigonate, completely bipartite by a central longitudinal groove, somewhat convex, rather thickly pubescent-punctate; frontal tubercles subtrigonate or subquadrate, strongly limited from the surrounding area, distinctly separated from one another by a deep longitudinal groove, somewhat raised with flat dorsum, glabrous, but the posterior marginal area rather sparsely and finely pubescent; clypeus subpentagonal, with front margin nearly straight, convex, pubescent-punctate on the lateral and basal areae, without depressed or unraised anterior marginal area; genae well developed, slightly converging anteriorly, somewhat acuminate on each side of the front margin which is touching to the base of mandible. Mouth-parts: labrum transverse, narrowed anteriorly, rounded and finely pubescent at the front corners, gently emarginate at the front margin, somewhat convex on the dorsum, but the anterior area bending downwardly, with a transverse row of some pubescent-punctures behind the middle; mandibles rather robust, incurved, sharply pointed at the apex, the right mandible with a distinct tooth on the underside of apex and also on the inner margin, the left mandible with two distinct teeth on the underside of apex and an angulation near the middle of inner margin; maxillary palpi rather robust, with 1st segment very small, 2nd and 3rd more or less thickened terminally and 2nd longer than 3rd, last (4th) segment longest and oblong-ovate in outline, with apex obliquely truncated; labial palpi also rather robust, with 1st segment minute, 2nd nearly obconical, last (3rd) one nearly ovate and rather longer than the preceding one; submentum large, strongly elongate. Eyes oblong-ovate, with a deep incision at the inner margin, convex, finely facetted. Antennae filiform, each segment longer than wide; 1st segment very sparsely pubescent and thicker than any one of the three followings but much slenderer than any one of the seven terminals, 2nd to 4th slender and sparsely pubescent, 5th to 11th distinctly elongate, thickened and very thickly pubescent, with apex of 11th pointed. Pronotum subcylindrical, longer than wide, widest at the base, strongly constricted on each side at middle; front and basal margins narrowly but distinctly bordered, lateral margins not bordered and furnished with a setigerous puncture on a little behind the anterior end and also near the basal end; dorsum with two transverse shallow grooves which are terminating laterally in the lateral constriction, but the anterior groove frequently obliterated at the middle or almost disappeared. Scutellum small, narrowly obtrigonate, with apex rounded and dorsum longitudinally convex. Elytra elongate-subquadrate, very much wider at the base than pronotum, rounded at the anterior corners, subparallel-sided, rounded at the posterior end; dorsum convex, post-scutellar

area and humeri somewhat raised, slightly depressed behind the post-scutellar elevated area, strongly punctate, the punctures arranging in eleven longitudinal rows (including a short scutellar and an external marginal one) on each elytron. Underside: prosternum short, very finely pubescent; prosternal process very narrow as like as a keel, entering between the apices of pro-epimera at the apex; acetabulae closed behind; mesosternum emarginat: at the ape , finely pubescent together with mesopleura; metasternum and meta-episterna finely pubescent, but the median area of meta-sternum glabrous; abdomen finely pubescent, with a glabrous or subglabrous area on the middle of each one of the four basal sternites. Legs rather slender, long, finely pubescent; fore-coxae nearly conico-cylindrical, strongly prominent, very closely approaching to each other; middle-coxae subglobular, distinctly separated from one another; hind-coxae transverse-oblong, distinctly distants to each other; femora somewhat incrassate; tibiae slender, gently thickened terminally, without spur; tarsi with two basal segments trigonate and 1st one longer than the 2nd, 3rd deeply bilobed, claw-segment club-shaped and curved; claws strongly curved, simply acuminated terminally, not fused together at the base.

The present new genus is allied to *Manipuria* Jacoby in the general appearance of the elongate head, but may be distinguished from it by the genae without such a tooth-like projection on the under surface in front of the mandible, frons limited by a deep X-shaped frontal groove, antennae not so robust, eyes prominent, hind-femora not so markedly thicker than the two anterior pairs of corresponding segment and tibiae without spur.

### 1. Mecoprosopus fulvus CHÛJÔ, sp. nov.

General colour light orangy or yellowish brown, rather lustrous; eyes and antennae (excepted the four basal segments yellowish brown) black, scutellum and elytra more or less paler or lighter, underside of thorax and legs dark brown, with claws piceous to black.

General characters as in the generic description and the additional specific description as follows: Neck-region sparsely punctate on the posterior area, but impunctate on the anterior area. Antennae slender, rarher shorter than half the length of body; 1st segment subcylindrical, 2nd also subcylindrical, shortest and slightly shorter but much slenderer than the preceding one, 3rd slightly longer but much slenderer than the 1st and rather thicker than the 2nd, 4th rather longer and slightly thicker than the 3rd, gradually thickened from the base of 5th to the apex of 10th, each one of these six latters much thicker and longer than any one of the four precedings and nearly equal in length to one another, 11th nearly equal in thickness to the 10th and pointed at the apex. Pronotum very sparsely punctate on the anterior area and some of these punctures arranging in a short longitudinal row on the middle. Scutellum nearly impunctate and glabrous. Striated punctures on the elytra very large, deep and closely approaching to each other, interstices of these striated punctures very narrow and bearing a longitudinal row of fine punctures on each.

Fig. 9. *Mecoprosopus fulvus* Chûjô, sp. nov.

**Length:** 5.0 - 5.5 mm.

**Loc. Distr.** - Taihoku-Si, Taihoku-Syû (2 Exs., **Cotypes**, 2.IV.1933 and 1 Ex., **Cotype**, 25.IV.1934, M. Chûjô leg.).

**Gen. Distr.** - Formosa.

## Genus *Crioceris* Fabricius

**Crioceris** [Geoffroy, Hist. Ins. Paris, I, p. 237 (1762)]※ Fabricius, Syst. Ent., p. 120 (1775); Gen. Ins., I, p. 222 (1776); Spec. Ins., I, p. 152 (1781). - Fourcroy, in Geoffroy, Ent. Parisiensis, I, p. 94 (1785).- Fabricius, Mant. Ins., I, p. 88 (1787); Ent. Syst., I, 2, p.[3 (1793); Syst. Eleuth., I, p. 449 (1801).- Latreille, Hist. Nat. Crust. Ins., XI, pp. 350-351 (1804).- Olivier, Ent. (Hist. Nat. Ins.), VI, pp. 724-728 (1808). - Curtis, British Ent., VII, No. 323, 1823-1840 (1830). - Stephens, Illustr. British Ent., Mandib. IV, pp. 267 & 279-280 (1831). - Lacordaire, Monogr. Phytoph. I (Mém. Soc. Roy. Sci. Liége, III), pp. 226 & 546-548 (1845). - C. G. Thomson, Skandinaviens Col., VIII, p. (137) (1866). - Chapuis, in Lacordaire, Hist. Nat. Ins.: Gen. Col., X, p.76 (1874). - Weise, Naturg. Ins. Deutschlands, VI, p. 67 (1882). - Fowler, Col. British Isls., IV, pp. 280 & 282-283 (1890). - Everts, Col. Neerlandica, II, pp. 391 & 407-408 (1903). - Jacoby et Clavareau, in Wytsman, Gen. Ins., XXIII, Col. Phytoph.: Crioceridae, pp. 2 & 26 (1904). - Jacoby, Fauna Brit. India, incl. Ceylon and Burma, Col. II: Chrysom. 1, pp. 12 & 71-72 (1908).- Reitter, Fauna Germanica, IV, pp. 79 & 80 (1912).- Kuhnt, Illustr. Best.-Tab. Käf. Deutschlands, pp. 802 & 817 (1913).- Schaufuss, in Calwer, Käferbuch, ed. 6, II, pp. 901 & 903-904, 1907-1916 (1913). - Scheerpeltz et Winkler, in Brohmer etc., Tierwelt Mitteleuropas, V, ii, 2, Col., p. XII-220 (1930). - Joy, Pract. Handb. British Beetles, I, p. 389 (1932). - Chûjô, Sylvia (Forest Club Quarterly, College of Agr. & Forest., Taihoku Imp. Uuiv., Taiwan), IV, 1, pp. 19 & 40 (1933). - Cressitt, Lingnan Sci. Journ., XX, 2-4, p. 296 (1942).

*Auchenia* Thunberg, Charact. Gen. Ins., ed. Meyer, p. 21 (1789) (pars).

*Lema* Fabricius, Suppl. Ent. Syst., p. 90 (1798) (pars).

**Genotype** : *Chrysomela asparagi* Linné, Syst. Nat., ed. 10, p. 375 (1758), from Europe [Designated by J. Curtis, in British Ent., VII, No. 323, 1823-1840 (1830)].

**Range** : World-wide.

**General characters:** Body elongate, parallel-sided or nearly so, with dorsum more or less convex; head, antennae, underside and legs thickly pubescent; scutellum finely pubescent or nearly glabrous; pronotum and elytra glabrous.

Head well exposed, strongly constricted on each side at a little behind the eyes, the constriction deeply grooved in the bottom and not connected to each other acrossing the dorsal surface; neck-region nearly cylindrical, with sides parallel or slightly rounded, strongly and rather thickly punctate on the dorsum; orbital areae coarsely reticulate-punctate or rugose-punctate, pubescent; frontal X-shaped groove deeply marked, not connected to the post-ocular groove at each posterior end; frons trigonate, bipartite by a central longitudinal groove which is sometimes obliterated beyond the middle, more or less convex, the convexture in one case continuous with of the dorsum of neck-region, but in another slightly limited from the latter by a very shallow transverse impression; frontal tubercles nearly quadrate or subtrigonate, not distinctly limited from the posterior area, not so strongly raised, glabrous, separated from one another by a very narrow or rather wide longitudinal groove which is connected to the anterior end of frontal X-shaped groove; clypeus nearly obpentagonal, with front margin somewhat emarginate or nearly straight, postrior area not entering between the frontal tubercles, convex medially from both sides, more or less pubescent-punctate on the lateral areae, with anterior area not raised in a short distance and glabrous. Mouth-parts: labrum transverse, somewhat narrowed anteriorly, rounded and finely pubescent at the front corners, somewhat

---

※ Not valid, because E. L. Geoffroy, did not accept the Linnaean System of nomenclature.

emarginate or nearly straight or rather rounded at the front margin, rather convex on the dorsum, but the medio-anterior area more or less depressed, with a few pubescent-punctures in a transverse line between the middle and basal margin; mandibles robust, incurved, with apex strongly bi- or trifidate; maxillary palpi with 1st segment small, 2nd and 3rd thickened terminally, last (4th) segment strongly elongate-oblong and longer than the penultimate segment; labial palpi with 1st segment minute, 2nd thickened terminally, last (3rd) segment oblong or conico-oblong and longer than the preceding one. Eyes large, nearly rounded or shortly ovate, distinctly convex, finely facetted, with inner margin deeply notched. Antennae filiform, about half as long as the body, with 1st segment very sparsely pubescent, 2nd shortest, distinctly shorter than wide and rather sparsely pubescent, 3rd and 4th, together with the 2nd, more or less slenderer than the others and rather thickly pubescent, terminal seven segments very thickly pubescent, with the apex of 11th bluntly pointed. Pronotum subquadrate, slightly constricted on each side near the base or rather markedly so between the middle and base; front margin nearly straight and narrowly bordered on each side, lateral margins more or less rounded, not bordered and furnished with a distinct setigerous puncture near each, anterior and basal, end, basal margin nearly straight or gently sinuate and narrowly but distinctly bordered; dorsum transversely convex, but the median area frequently flat or nearly so, with a very shallow transverse impression closely along the basal margin and the impression terminating laterally in the lateral constriction. Scutellum rather wide at the base, strongly narrowed posteriorly with a gentle curvature, rounded or slightly angulated at the apex, with dorsum flat or convex or depressed and finely but not thickly pubescent or glabrous. Elytra strongly elongate-subquadrate, much wider at the base than pronotum, parallel-sided or nearly so, rounded at the apex; dorsum convex, with median area frequently flat or nearly so, regularly punctate in eleven longitudinal rows (including a short scutellar and an external marginal row) on each elytron, the punctures large and deep on the basal area but becoming smaller terminally, interstices of these regular rows of punctures flat on the basal area but more or less convex or costate on the posterior area; humeri somewhat raised, usually free from the striated punctures. Underside: prosternum short, coarsely and rugosely pubescent-punctate; prosternal process very narrow as like as a keel between the fore-coxae, touching at the posterior end to the apices of pro-epimera; acetabulae closed behind; mesosternum coarsely and rugosely pubescent-punctate, with posterior end truncated; metasternum rather thickly pubescent-punctate, with median area very sparsely so or nearly impunctate; meso- and meta-pleura very thickly pubescent-punctate. Abdomen rather thickly or sparsely pubescent-punctate, with 1st sternite much longer than any one of the four followings. Legs: fore-coxae nearly conical or conico-cylindrical, strongly prominent, contiguous or very closely approaching to each other; middle-coxae globular, distinctly separated from one another by mesosternum; hind-coxae transverse oblong, well distants to each other; femora somewhat incrassate; tibiae rather slender, gently thickened terminally, frequently arcuated inwardly or downwardly, with a single spur at the apex of lower side; tarsi with two basal segments trigonate, of which the 1st one longer than the 2nd, 3rd segment deeply bilobed, claw-segment club-shaped, somewhat curved; claws strongly curved, sharply pointed, free from one another at the base.

## 2. Crioceris issikii CHŪJÔ, sp. nov.

Body rather narrowly elongate, nearly parallel-sided, somewhat lustrous. General colour black: head with a pair of yellowish brown or reddish brown marking transversely (these markings with a tendency to unite in a large marking and develope forwardly): pronotum yellowish brown or reddish brown, with four transversely arranged black markings just before the middle and another smaller one a little before the scutellum; elytra yellowish brown or reddish brown, with seven black markings on each elytron as follows: a smaller elongate one occupying the humerus, a very small one a little behind the preceding one, a semilunar one on the base touching to the inferior corner of basal margin and lateral margin of scutellum and also basal part of sutural margin, a large elongate one (with a gentle curvature at its outer margin) a little behind the preceding one and touching to the sutural margin (sometimes these two sutural markings connected by a narrow black stripe along the sutural margin), a quadrate-oblong or quadrate-oval one between the preceding one and lateral margin (sometimes the present one connected to the preceding one by a short black band), a subquadrate or subrotundate one a little behind the preceding one and distinctly distanting from the lateral and sutural margins, a small one on the apex: lateral extremities of abdominal sternites tinged with dark yellowish brown or reddish brown.

Fig. 10. *Crioceris issikii* Chûjô, sp. nov.

Fig. 11. *Crioceris issikii* Chûjô, sp. nov.

Generl structures as in the generic description and the additional specific structures as follows: Frons very minutely punctulate, glabrous, with some distinct pubescent-punctures on each lateral extremity; frontal tubercles distinctly separated to each other by a longitudinal impression, with basal area depressed and coarsely pubescent-punctate, but the anterior area raised, nearly impunctate and glabrous; clypeus irregularly raised, sparsely furnished with large pubescent-punctures, with front margin nearly straight and posterior area raised longitudinally in a short distance; labrum sparsely furnished with long pubescence on the lateral margins, gently emarginate and finely pubescent at the front margin. Antennae slightly longer than half the length of body, with 1st segment subglobular, 2nd shortest and very much wider than long, 3rd much longer than the 2nd and nearly equal in length to the 1st but slenderer, 4th slightly longer than the 3rd, 5th longest, about one and a half times as long as the 4th and strongly thickened terminally, 6th slightly shorter than the 5th but equal in thickness to the thickest portion of the latter, from 6th to 10th subequal in length and thickness to each other, 11th slightly shorter than the 5th but much longer than the 10th and bluntly pointed at the apex. Pronotum subcylindrical, slightly wider than long, gently constricted on each side at a little behind the middle; dorsum finely but not thickly punctulate, rather coarsely punctate on each latero-anterior area, with ante-basal transverse impression as usual. Scutellum gently narrowed posteriorly, very finely but not thickly punctulate and glabrous on the dorsum. Elytra nearly parallel-sided, slightly transversely depressed at a little behind the scutellum, regularly punctate-striate as usual, with their interstices impunctate.

**Length:** 5.5 mm.

**Loc. Distr.** - Oiwake (altitude about 2400 metres), Nôkô-Gun, Taityû-Syû (2 Exs., **Cotypes**, 13. VIII. 1940, M. Chûjô leg.).

**Gen. Distr.** - Formosa.

The present new species is very closely allied to *Crioceris quatuordecimpunctata* (Scopoli) and its variety *sibirica* Weise, but may be distinguished from them by the body smaller, narrower and flatter, the pronotum shorter and much finely punctulate, black markings of the elytra generally larger, especially the infero-basal one much larger and touching to the basal, scutellar and sutural margins, but only the post-humeral one much smaller.

The specific name of this new species is dedicated to Prof. Dr. S. Issiki of the Taihoku Imperial University, Taiwan.

## Genus Lilioceris Reitter

**Lilioceris** Reitter, Fauna Germanica, IV, p. 79 (1912). - Heinze, Ent. Blätt., XXIII, 4, p. 163 (1927); Zool. Anz. (Wasman-Festband), pp. 89-92 (1929) - Scheerpeltz et Winkler, in Brohmer etc., Tierwelt Mitteleuropas, V, ii, 2, Col., p. XII-220 (1930). - Heinze Ent. Nachrbl., V, 3, p. 53 (1931).

**Genotype:** *Crioceris lilii* (Scopoli), Ent. Carn., p. 36 (*Attelabus*) (1763), from Europe.

**Range:** World-wide.

**General characters:** Body elongate, parallel-sided or nearly so, with head, antennae, underside and legs finely pubescent, scutellum finely pubescent or glabrous, pronotum and elytra glabrous.

Head well exposed, strongly constricted and deeply grooved on each side at a little behind the eyes, the constrictions completely connected to each other by a strong transverse impression acrossing the dorsal surface: neck-region distinctly widened posteriorly at the anterior area, gently convex, rather sparsely punctate; orbital area coarsely reticulate-punctate, with a fine pubescence in the centre of each puncture; frontal X-shaped groove deep, completely connecting to the post-ocular groove at the posterior end; frons trigonate, markedly convex, very sparsely pubescent-punctate, with a central longitudinal groove or fovea, distinctly limited from the neck-region; frontal tubercles nearly trigonate or quadrate, distinctly limited from the surrounding area, widely separated from one another, more or less convex, nearly glabrous; clypeus nearly obpentagonal, with front margin straight or gently emarginate, dorsum somewhat convex and not thickly pubescent-punctate. Mouth-parts: labrum transverse, narrowed anteriorly, rounded and finely pubescent at the front corners, straight or gently emarginate or rather rounded at the front margin, somewhat convex on the dorsum, but the medio-anterior area more or less depressed, with a transverse row of some pubescent-punctures between the middle and base; mandibles robust, incurved, with apex bi- or tridentate; maxillary palpi rather slender to robust, with 1st segment small, 2nd and 3rd distinctly thickened terminally, last (4th) one elongate-oval or oblong and generally longer than the penultimate one; labial palpi rather robust, with 1st segment minute, 2nd distinctly thickened terminally, last (3rd) one oblong or oblong-oval and generally longer than the preceding one. Eyes large or medium, oval to oblong, distinctly prominent, finely facetted, deeply notched at the inner margin. Antennae filiform, rather

robust, generally longer than half the length of body, but much shorter than the whole length of body; 1st segment strongly thickened and very sparsely pubescent, 2nd shortest and sparsely pubescent, 3rd and 4th rather thickly pubescent, the seven remainders more or less thicker than the two precedings and very thickly pubescent, with 11th bluntly pointed at the apex. Pronotum subquadrate, strongly constricted on each side at, or just behind, the middle; front and basal margins narrowly but distinctly bordered, lateral margins not bordered and furnished with a distinct setigerous puncture on a little behind the anterior end and also near the posterior end; dorsum transversely convex, but the median area frequently flat or depressed, with a transverse impression (ante-basal transverse impression), which is terminating laterally in the posterior end of lateral constriction, between the middle and basal margin, in some cases with another transverse impression (ante-median transverse impression), which is terminating laterally in the anterior end of lateral constriction, on a little beyond the middle, but the latter impression frequently interrupted or obliterated at the middle (these latter character is not only the specific one but may be seen between the individuals of the same species). Scutellum generally longer than wide, distinctly narrowed posteriorly, narrowly rounded or truncated at the apex, flat or longitudinally convex and more or less pubescent-punctulate on the dorsum. Elytra elongate-subquadrate, much wider at the base than pronotum, paralle-sided or nearly so, rounded at th apex; dorsum convex, with median area generally flat, frequently shallowly depressed on a little behind the base, regularly punctate in eleven longitudinal rows (including a short scutellar and an external marginal row) or ten longitudinal rows (without a short scutellar row in the former case) on each elytron, the punctures large and deep on the basal area but becoming smaller posteriorly, interstices of these regular rows of punctures flat on the basal area but more or less convex on the posterior area; humeri more or less raised, usually free from the large striated punctures. Underside: prosternum short, more or less pubescent-punctate, frequently rugose; prosternal process very narrow as like as a keel between the fore-coxae, touching to the apices of pro-epimera at the posterior end; acetabulae closed behind; mesosternum rather narrow or wide between the middle-coxae, generally pubescent-punctate, often rugose; mesopleuron thickly pubescent-punctulate; metasternum very sparsely pubescent-punctulate, with median area generally impunctate and glabrous; meta-episterna rather sparsely pubescent-punctulate, with median area sometimes glabrous or nearly so; abdomen more or less pubescent-punctulate, with 1st sternite much longer than any one of the four followings. Legs: fore-coxae conico-cylindrical, strongly prominent, nearly or completely contiguous to each other; middle-coxae globular, distinctly separated from one another; hind-coxae transverse oblong, well aparting to each other; femora somewhat incrassate; tibiae slender, gently thickened terminally, with two hind pairs generally more or less curved, each one armed with a pair of spur at the apex of lower side; tarsi with two basal segments trigonate, generally the 1st longer than the 2nd, 3rd segment deeply bilobed, claw-segment club-shaped and somewhat cuvred; claws acute, strongly curved, not joined together at the base.

This genus contains the great majority of the species known as the members of *Crioceris* (Geoffory) Fabricius in the past and divided in three subgenera as follows:

## Key to the Subgenera

i. Elytra without a short scutellar row of large punctures, structures of frons as those of *Lilioceris* s. str. ........................................ *Bradyceris* subgen. nov.

i'. Elytra with a short scutellar row of large punctures ........................................ (ii)

ii. Frons strongly elongate forwardly and extending at its apex to a transverse disguise-line which may be formed by the connection of the anterior ends of eyes ........................ *Metopoceris* Heinze

ii'. Frons not so elongate as in above, viz. — the apex existing much more posterior area of such a disguise-line as in above ........................................ *Lilioceris* s. str.

In these three subgenera, *Metopoceris* Heinze, Ent. Nachrbl., V, 3, p. 53 (1931) (including only one species – Genotype – from Mexico at present) having no relation to our faunistic region.

### Subgenus Bradyceris CHÛJÔ, nov.

**Subgenotype:** *Criocceris lewisi* Jacoby, Proc. Zool. Soc. London, pp. 194-195, pl. xi, f. 3 (1885), from Japan proper.

**Range:** Japan proper.

**Main character:** Elytra without a short scutellar row of large punctures.

**Remarks:** The general structures as those of the generic ones, but in the subgenotype-species the following characters are also noticeable: Pronotum with a shallow ante-basal transverse impression and also another ante-median transverse impression, which is rather obliterated at the middle, on the dorsum, these two impressions equally terminating laterally in the latero-median constriction of the present notum and frequently very weak entirely; each elytron with sutural margin gradually raising posteriorly, 2nd interstice (existing between the 2nd and 3rd longitudinal rows of large punctures) strongly costate from the base to near the apex and 8th interstice (existing between the 8th and 9th longitudinal rows of large punctures) also rather markedly costate from the post-humeral portion to near the apex.

The lacking of the short scutellar row of large punctures (the main character of this subgenus) may be seen in some members (bounded in a subgenus *Bradylema* Weise) of the genus *Lema* Fabricius and I think it will be a stable subgeneric character, but on the latter additional characters I can not assert the as a subgeneric ones at once, because this is a monobasic Subgenus at present.

### Subgenus Lilioceris s. str.

**Subgenotype:** *Criocceris lilii* (Scopoli), Ent. Carn., p. 36 (*Attelabus*) (1763), from Europe.

**Range:** World-wide.

**General characters** as in the generic description; frons ending at the anterior end near the middle of inter-ocular space, elytra with a short scutellar row of large punctures.

There are five species of this subgenus in Formosa and separated as follows:

#### Key to the Species

1. Elytra reddish brown or chocolate-brown, with two large yellow or yellowish brown markings on each elytron ........................................ *miwai* sp. nov.

1'. Elytra unicolour, without markings ........................................ (2)

2. Elytra very strongly elevated behind the scutellum as like as a conical hump, strongly transversely depressed behind the former elevation, not entirely punctate-striate on the whole surface ........................................ *formosensis* (Chûjô)

2'. Elytra without such a combination of the characters as in above ········································ (3)
3. Frons markedly bipartite by the presence of a deep central longitudinal groove, with each one part distinctly convex; meta-episterna nearly glabrous or only finely pubescent along each marginal area ································································································ *merdigera* (Linné)
3'. Frons not so characterized as in above, generally with a short and shallow longitudinal groove on the middle or posteterior half; meta-episterna thickly pubescent throughout ······················ (4)
4. Head, antennae, prothorax, scutellum, lateral areae of the underside of meso- and metathorax and legs metallic bluish green or greenish blue, and the remaining areae reddish brown ··· *shirakii* Chûjô
4'. Coloration variable, but not metallic in any case ··················································· *impressa* (Fabricius)

### 3. Lilioceris (s. str.) miwai Chûjô, sp. nov.

Body elongate, subparallel-sided. General colour reddish brown or chocolate-brown, lustrous, with underside, especially the thorax, rather darker than the dorsum and legs; antennae black, with the exception of the two or three basal segments concolorous with the general colour; tarsi and claws blackish brown to pitchy black; each elytron decorated with two large yellow or yellowish brown markings, the one of which rounded and occupying the whole surface of humeral region or the humeral calus only, the other one transversely ovate, distinctly convex, situating a little behind the middle and more approaching to the lateral margin than to the sutural margin.

Head: neck-region very sparsely punctate or nearly impunctate on the anterior area, but thickly punctate on the posterior area; frons gently convex, completely bipartite by a central longitudinal groove, very minutely but not thickly punctulate, with a few pubescent-punctures on each side; frontal tubercles transversely subquadrate, raised, distinctly limited from behind bya transverse groove which extends laterally to the bottom of the incision of eye, widely separated to each other, smooth, impunctate and glabrous; clypeus rather irregularly raised, very finely but not very thickly punctulate, strongly and sparsely pubescent-punctate, with front margin straight; labrum with front margin gently emarginate at the middle, dorsum irregularly convex and furnished with a pair of transversely settled masses (in a short transverse row) of fine pubescence nearly along the front margin besides the general transverse row of some pubescent-punctures near the middle. Antennae robut, rather shorter than half the length of body, with 1st segment subcylindrical, a little thickened terminally, slightly curved and distinctly longer than wide, 2nd shortest, much wider than long and very strongly thickened terminally, 3rd and 4th strongly thickened terminally and much longer than wide, 4th slightly longer than the 3rd and nearly equilength to the 1st, the seven followings very strongly widened and elongate, 5th slightly shorter than the two precedings combined, 6th rather shorter but thicker than the 5th, 7th nearly equilength to the 6th but rather wider, 8th to 10th obtrapezoidal in outline, slightly longer than wide and each one of them rather wider than the 7th, 11th much longer than wide, subpentagonal, with lateral margins gently rounded and apex bluntly pointed. Pronotum distinctly longer than wide, subcylindrical, somewhat narrowed anteriorly, rather weakly constricted on each side at middle;

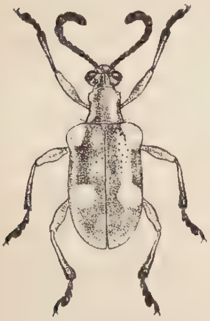

Fig. 12. *Lilioceris* (s. str.) *miwai* Chûjô sp. nov.

front margin followed with a transverse groove a little posteriorly, latero-anterior areae somewhat raised conically and furnished with a large setigerous puncture on the top, basal coners furnished with a large setigerous puncture on each extremity, basal margin narrowly but distinctly bordered; dorsum covered with two kinds (fine and very fine) of punctures on the whole surface, sparsely covered with large punctures on the anterior marginal area and some of those punctures arranging in two longitudinal rows between the anterior marginal area and centre of the dorsum. Scutellum narrowly obtriangular, with apex not sharply pointed and dorsum rather sparsely pubescent. Elytra strongly elongate, nearly parallel-sided, with humeral areae strongly produced; dorsum convex, with a transverse depression before the middle, finely but sparsely covered with very fine punctures; each elytron with eleven longitudinal rows of punctures as usual, but there may be seen only the basal half of the inferior four rows and a sutural and an external marginal rows as a normal punctures, the other punctures may only be traceable as like as black spots under a high power lens and the spots not denoted as so-called "the punctures."

**Length:** 7.5 - 8.0 mm.

**Loc. Distr.** - Mt. Ari-san (altitude about 2000 metres), Tainan-Syû (1 Ex., **Cotype**, 10.VII.1929, M. Chûjô leg.) and Rimogan (altitude about 1000 metres), Bunzan-Gun, Taihoku-Syû (1 Ex., **Cotype**, 24.IX.1938, Y. Miwa leg.).

**Gen. Distr.** - Formosa.

This new species is very unique in the character of the elytral maculation and not found the allied one in all of the known-species of this genus.

The specific name is dedicated to Dr. Y. Miwa of the Agricultural Experimental Institute, Government of Taiwan.

### 4. Lilioceris (s. str.) formosensis (CHÛJÔ)

*Crioceris formosensis* Chûjô, Sylvia (Forest Club Quarterly, College of Agr. & Forest., Taihoku Imp. Univ., Taiwan), IV, 1, pp. 43, 47-49 & 61, f. 1 (1933) (Formosa: Kôshun).

Body comparatively wide, subparallel-sided. General colour dark reddish brown, lustrous, with tarsi yellowish brown and claws pitchy black.

Head slightly narrowed posteriorly between the eyes and post-ocular constriction, neck-region impunctate on the anterior area but thickly puncatate on the posterior area; frons convex, sparsely pubescent-punctate, the punctures uneven in their size, with a central longitudinal fovea which is dispatching a fine groove anteriorly, but the groove not extending to the apical end of frons; frontal tubercles subtriangular, distinctly delimited from frons and also one another, impunctate, smooth and glabrous; clypeus convex, rather thickly pubescent-punctate, with front margin very slightly emarginate; clypeus with front margin somewhat notched at the middle, dorsum bearing a pair of short transverse row of very fine pubescence near the front margin besides the usual transverse row of some larger pubescent-punctures behind the middle. Antennae robust, about half as long as the body; 1st segment subcylindrical and rather longer

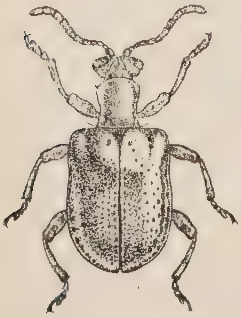

Fig. 13. *Lilioceris* (s.str.) *formseonsis* Chûjô

than wide, 2nd shortest, cylindrical and much wider than long, 3rd and 4th nearly equal in length to one another, but the latter (4th) slightly thicker than the former (3rd) and each one of them much longer than the 2nd but shorter than the 1st, 5th longest, subcylindrical and much longer and thicker than any one of the precedings, 6th rather shorter but wider than the 5th. 7th slightly shorter but mnch wider than the 5th, 8th and 10th nearly equal in shape and length to one another and each one of them slightly shorter but wider than the 6th, 9th nearly equal in length to, but much wider than the 6th, 11th elongate subtriangular, with lateral margins gently rounded and apex rather bluntly pointed. Pronotum distinctly longer than wide, subcylindrical, widest at the basal extremity, slightly narrower at a little behind the front margin than the base, distinctly constricted on each side at middle, furnished with a distinct setigerous puncture on each side at a little behind the anterior area and also near the psoterior end; front margin followed by a distinct sulcus, basal margin narrowly but distinctly bordered; dorsum finely but not very thickly punctulate and moreover furnished with large punctures in a transverse line along a little behind the anterior transverse sulcus and also in two longitudinal parallel lines on the middle, with a faint and rather irregular transverse impression, which is connecting to the lateral constriction on each side, near the base. Scutellum nearly obtrigonate, with apex not sharply pointed and dorsum rather finely pubescent. Elytra distinctly longer than wide, much wider at base than pronotum, nearly parallel-sided, gently rounded on each side of the basal area, strongly rounded at the apex; dorsun convex, very strongly elevated at the middle of base as like as a conical hump, transversely depressed behind the former elevation, very minutely but not thickly punctulate, regularly striate-punctate, most of the latter large punctures only visible within the upper layer of the elytra as like as dark spots and not exposed on the upper surface as like as the usual punctures, but some of them exposed as strong foveolate punctures on the upper surface on the premedian, infero-humeral, lateral and apical areae. Abdomen with a rounded mass of fine pubescence on each side of the four basal sternites.

**Length:** 9.0 mm.

**Loc. Distr.** - Kôsyun, Kôsyun-Gun, Takao-Syû (1 Ex., **Holotype**, 25.IV-25.V.1918, J. Sonan leg.).

**Gen. Distr.**- Formosa.

## 5. Lilioceris (s. str.) merdigera (LINNÉ)

*Chrysomela merdigera* Linné, Syst. Nat., ed. 10, p. 375 (1758) (Europe).

*Crioceris merdigera* Gemminger et Harold, Cat. Col., XI, p. 3264 (1874) (Europe).- Weise, Naturg. Ins. Deutschlands, VI, p. 70 (1882) (Europe). - Jacoby, Biol. Centr.-Americana, Col. VI, 1, Suppl. p. 48 (1888) (C. America). - Reitter. Wiener Ent. Zeit., XII, 9, p. 302 (1893) (Europe).- Bedel, Faune Col. Bassin Seine, V, pp. 115 - 219 (1889-1901) (Europe). - Seidlitz, Fauna Baltica, ed. 2, p. 727 (1891) (Europe); Fauna Transsylvanica, p. 819 (1891)(Europe). - Everts, Col. Neerlandica, II, p. 408 (1903) (Europe).- Jacoby et Clavareau, in Wytsman, Gen. Ins. XXIII, p. 27 (1904) (S. & C. Europe). - Clavareau, in Junk et Schenkling, Col. Cat., LI, 48 (1913) (Europe, Asia, Mexico & Brazil). - Kuhnt, Illustr. Best. - Tab. Käfer Deutschlands, p. 818 (1913) (Germany). - Schaufuss, in Calwer, Käferbuch, ed. 6, II, p. 904, pl. xxxiii, f. 15, 1907-1916 (1913) (Europe). - Jacobson, Käf. Russlands u. Westeuropas, pl, lxii, f. 16, 1905-1916 (1916). - Ho, in Wu, Cat. Ins. Sinensium, III, p. 781 (1937) (China).- Yuasa, Kontyû, XIII, 5-6, pp. 199-202, f. (1939) (Korea, Saghalien & Japan proper). - Chûjô, Trans. Nat. Hist. Soc. Formosa, XXX, 204, pp. 350-351 (1940) (Korea); l. c., XXXI, 219, p.452 (1941) (Korea).

*Lilioceris merdigera* Reitter, Fauna Germanica, IV, p. 80, pl. clxii, f. 3 (1912) (Germany).- Winkler, Cat. Col. Reg. Palaearcticae, II, 10, p. 1234 (1929) (Europe & Asia).

*Crioceris convallariae* Harrer, Beschr. Ins. Schaeffer, p. 142 (1791) (Germany).

*Crioceris brunnea* Fabricius, Ent. Syst., I, 2, p.6 (1793) (Germany).- Latreille, Hist. Nat. Crust. et Ins., XI, p. 351 (1801) (Germany).- Lacordaire, Monogr. Phytoph., I, pp. 576-580 (1845) (Europe & Siberia).

*Crioceris nigritarsis* Doi, Dôbutugaku Zassi, XL, 479, pp. 372-373, f. 1 (1928) (S. Saghalien).- Chûjô, Sylvia, IV, 1, pp. 44 & 50 (1933) (S. Saghalien). - Iwamoto, Kontyû Kenkyû, I, 1, p. 19 (1937) (Korea); Hirosima Kontyû Dôkôkai Kaisi, IV, 1, pp. 25-26, f. 1 (1937) (Korea).

Body elongate, nearly parallel-sided. General colour reddish brown, lustrous; head with anterior area and underside black in general, ocular-orbits frequently black, sometimes frons entirely or partially tinged with black, but not rarely more or less mixed with reddish brown in these areae and in some cases almost entirely reddish brown; antennae generally black, but sometimes piceous to pitchy black with 1st segment pitchy red; scutellum generlly more or less darker than the general colour of the body and sometimes partly black; underside of thorax generally black, but in some cases metasternum partly or entirely reddish brown, rarely mesosternum and prosternum also partly or entirely reddish brown; abdomen very variable in coloration, but generally with three basal sternites entirely black, 4th sternite generally mostly black and narrowly tinged with reddish brown on the hind and lateral marginal areae, but sometimes entirely reddish brown; rarely with two basal sternites entirely or mostly black, two apical ones reddish brown, and intermediate (3rd) one irregularly tinged with black and reddish brown; in other cases the general colour of abdomen reddish brown and marked with a piceous or black spot on each side of three or four basal sternites; legs with coxae, trochanters, bases and apices of femora, bases of tibiae and tarsi black and the rests reddish brown, but sometimes coxae and trochanters more or less stained with reddish brown or entirely reddish brown, bases of femora and knees also completely disappearing the dark coloration in some cases.

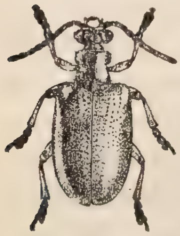

Fig. 14. *Lilioceris* (s. str.) *merdigera* (Linné)

Head with post-ocular area short and distinctly narrowed posteriorly, neck-region rather widened posteriorly and sparsely or thickly punctate; frons convex, bipartite by a strong central longitudinal groove, extremely minutely punctulate throughout, very sparsely and coarsely punctate, sparsely or rather thickly pubescent-punctate on the anterior and lateral areae; frons markedly raised, subtriangular, distinctly limited from the surrounding areae and also from one another, extremely finely punctulate, glabrous; clypeus convex, with front margin slightly emarginate, very minutely punctulate, rather sparsely or thickly and coarsely setigerous-punctate on the lateral areae and very sparsely so on the middle; labrum rather convex, distinctly emarginate at the front margin, with two transversely arranged short rows of fine pubescence near the front margin besides the usual transverse row of large pubescent-punctures on the basal area. Antennae filiform, comparatively slender, rather longer than half the length of body, each segment more or less longer than wide with

the exception of the 2nd segment which is much wider than long; 1st segment subglobularly thickened, 2nd smallest, 3rd slightly shorter and slenderer than the 4th, 4th nearly equal in length to, but much slenderer than, the 1st, the seven terminal segments variable in their length by the individuals, but generally subequal to each other and each one of them much longer and thicker than the 4th, with apex of 11th more or less pointed. Pronotum subquadrate, strongly constricted on each side at middle and strongly rounded before the constriction but rather simply widened posteriorly; dorsum transversely convex, thickly covered with two kinds (finer and rather larger) of fine punctures, sparsely covered with very large punctures on the latero-anterior areae, some large punctures in a transverse line along the front margin and also in a central longitudinal line, with a postmedian transverse impression as usual. Scutellum obtrigonate, with apex rounded, dorsum very minutely punctulate throughout, rather sparsely and coarsely pubescent-punctate along the lateral margins. Elytra elongate-quadrate, much wider at the base than pronotum, rounded at the apex; dorsum convex, with a slight transverse impression between the base and middle, very finely punctulate throughout, strongly and regularly punctate-striate as usual, with their interstices mostly flat but more or less convex on the lateral and apical areae and sparsely punctulate in a longitudinal line on each. Underside: head, prosternum and mesosternum finely and thickly pubescent; marginal areae of meso- and metapleura and metasternum finely and thickly pubescent, but the median areae of them very sparsely pubescent or nearly glabrous; abdomen rather regularly and sparsely pubescent nearly along the margins of all sternites and very sparsely pubescent on each median area.

**Length:** 6.0 - 8.0 mm.

**Food-plant:** In Japan, after H. Yuasa, 1939 — *Lilium longiflorum* Thunb. var. *gigantium* Hort. (Japanese name: *Kuroziku-Teppoyuri*).

In Germany, after E. Reitter, 1912 — *Convallaria* spp. and *Allium cepa*, and in mountain-districts *Lilium montagon*.

In Europe, after C. Schaufuss, 1913 — *Convallaria*, *Smilacia*, *Lilium* and *Allium cepa*.

**Loc. Distr.** - Mt. Sô-zan (altitude about 400-450 metres), Sitisei-Gun, Taihoku-Syû (1 Ex., 21. IV. 1925, T. Kano leg.).

**Gen. Distr.** - Europe, Siberia, China, Korea, S. Saghalien, Japan proper, Formosa, Mexico and Brazil.

This is a first record of this species from Formosa and the present example well agreable with the examples from Japan proper and Korea in the coloration. In the E. Asian examples the reddish brown colour of the underside of body is much developing than in the European examples.

## 6. Lilioceris (s. str.) shirakii Chûjô

*Lilioceris* (s. str.) *shirakii* Chûjô, Trans. Nat. Hist. Soc. Taiwan, XXXIII, 242-243, pp. 570-572, 1 fig. (1943) (Formosa: Mt. Hinoki-yama, Kayahara & Urai, all in Bunzan-gun, Taihoku-syû).

Body large, elongate, subparallel-sided. Head, antennae, pronotum, scutellum, underside of pro- and mesothorax, lateral areae of the underside of metathorax and legs metallic dark greenish blue or bluish greeen, with a slight cupreous sheen partially; elytra, median area of metasternum and abdomen deep reddish brown or brownish red; anterior area of

clypeus and mouth-parts dark brown to piceous or black, seven terminal segments of antennae much darker than the four basal segments and subopaque, median area of mesosternum frequently dark reddish brown, claws piceous to black.

Head: post-ocular area (the area between the posterior ends of eyes and post-ocular constriction) short, strongly narrowed posteriorly; neck-region somewhat widened posteriorly, rather thickly punctate and sparsely strigose on each side of the anterior area; frons convex, very finely punctulate, sparsely pubescent-punctate on the lateral and anterior areae, with a large elongate fovea just behind the middle and a narrow longitudinal sulcus before the middle, the sulcus in some cases completely reaching to the anterior end of frons and also to the postmedian fovea, but in other cases reaching to the anterior end or the posterior fovea only; frontal tubercles subquadrate, obliquo-transversely elongate, distinctly delimited from behind by a groove, widely separated to each other, shallowly concave on the dorsum, nearly impunctate and glabrous; clypeus with front margin gently emarginate, dorsum convex, very minutely punctulate, sparsely pubescent-punctate on the lateral and median areae; clypeus with front margin gently emarginate, dorsum somewhat convex, with anterior area rather depresseed, furuished with a short oblique row of fine pubescence near each anterior corner, besides these there is an usual transverse row of large pubescent-punctures on the basal half of the dorsum. Antennae proportionately slender, abut half as long as the body; 1st segment strongly thickened, 2nd ring-shaped, very much shorter than it is wide and also any one of the other segments, 3rd and 4th respectively widened terminally and the former (3rd) rather shorter, but the latter (4th) slightly longer, than the 1st, the seven followings more or less depressed from both sides, each one of them much longer than wide, subequal in length to one another and each one of them much longer than the 4th, with the apex of 11th pointed. Pronotum subcylindrical, rather longer than wide, slightly wider at base than the widest portion of premedian area, strongly constricted on each side at middle, furnished with adistinct setigerous puncture a little behind the front margin on each side and also just before the hind corner; dorsum transversely convex, with a rather shallow transverse impression a littie before the basal margin, the impression ending laterally in the lateral constriction, finely but not thickly punctulate, sparsely and strongly punctate on each latero-anterior area and along the front margin, some of the similar large punctures arranging in two longitudinal rows on the middle; front margin followed by a sharp groove, basal margin narrowly but distinctly borderd. Scutellum obtrigonate, thickly pubescent-punctulate on the dorsum. Elytra elongate, much wider at the base than pronotum, nearly parallel-sided, with latero-basal margins somewhat rounded, rounded at the apex; dorsum convex, with a light transverse impression a little before the middle, strongly and regularly punctate-striate as usual, with their interstices finely but aparsely punctate, the punctures arranging in a longitudinal row on each interstice.

Fig. 15. *Lilioceris* (s. str.) *shirakii* Chûjô

**Length:** 10.0 - 11.0 mm.

**Loc. Distr.** — Mt. Hinoki-yama, Kayahara and Urai (These are the type-localities and all of them belonging to the mountain districts — more than 400 metres in altitude), all in Bunzan-Gun of Taihoku-Shû (after M. Chûjô, 1943).

**Gen. Distr.** — Formosa.

## 7. Lilioceris (s. str.) impressa (FABRICIUS)

*Crioceris impressa* Fabricius, Mant. Ins., I, p. 88 (1787) (Siam). - Olivier, Encycl. Méth. Ins., VI, p. 197 (1791) (Siam & Sumatra). - Fabricius, Ent. Syst., I, 2, p. 6 (1793) (Siam). - Olivier, Ent. Col., VI, p. 730, PL. V, N° 94, pl. i, f. 4 (1808) (Siam & Sumatra). - Lacordaire, Monogr. Phytoph., I, pp. 562-563 (1845) (Java, Sumatra, Coromandel, Malabar, Bengal & Assam). - Baly, Trans. Ent. Soc. London, (3), IV, 1, pp. 32-33 (1865) (Borneo, Malacca (Singapore), Java, Amboina, Manilla, Boneo-Ceylon, Siam, India & China). - Gemminger et Harold' Cat. Col., XI, p. 3264 (1874) (E. India). - Jacoby et Clavareau, in Wytsman, Gen. Ins., XXIII, p. 28 (1904) (India). - Jacoby, Fauna Brit. India, Col. II: Chrysom. 1, pp. 72-73 (1908) (India, Ceylon, Amdaman Isls., Nicobar Isls., Malayan Isls., Philippines, China & Siam). - Clavareau, in Junk et Schenkling, Col. Cat., LI, p. 46 (1913) (S.-E. Asia & Philippines). - Weise, Tjidschr. Ent., LXV, p. 41 (1922) (China: Fukien). - Chûjô, Sylvia, IV, 1, pp. 43, 44, 46, 61 & 64 (1933) (Formosa: many localities); Arb. Morph. Taxon. Ent., Berlin-Dahlem, I, 4, p. 283 (1934) (Formosa: Paroe & Chôkôkei). - Ho, in Wu, Cat. Ins. Sinensium, III, p. 780 (1937) (China: Fukien).- Gressitt, Lingnan Sci. Journ., XX, 2-4, pp. 296, 297 & 300 (1942) (China: W. & S. Distr. incl. Hainan Is).

*Lema impressa* Fabricius, Suppl. Ent Syst., p. 90 (1798) (Siam); Syst. Eleuth., I, p. 471 (1801) (Siam).

*Lilioceris impressa* Winkler, Cat. Col. Reg. Palaearcticae, II, 10, p. 1234 (1929) (China).

Coloration very variable: 1. Entirely yellowish brown or reddish brown or reddish or rufo-piceous (var. *castanea* Lacordaire); 2. Ground colour as in the 1st case, with antennae (the three basal segments often pitchy red) and lateral areae of meso- and metathorax black, dorso-lateral parts of tarsi, together with the apices of tibiae in some cases, more or less infuscated; 3. Ground colour as in the 1st case, with head (partially or entirely), scutellum, lateral areae of underside of thorax and legs (partly or wholly) piceous to black, in some cases abdominal sternites with a bark spot on each side; 4. Ground colour as in the 2nd cese, with metathorax (in some cases mesothorax also), abdomen and legs entirely black; 5. Genenral colour black, with elytra as in the 1st case (var. *omophloroides* Lacordaire); 6. Entirely black.

Head rather thickly punctured and griseous or whitish pubescent, interspaces of these punctures extremely minutely but not thickly punctulate, partially shagreened; neck-region widened posteriorly, sparsely punctate, glabrous; frons moderately convex, with median and posterior areae generally glabrous, a median longitudinal groove which is variable in its length and depth by the individuals; frontal tubercles rather raised, flat or slightly convex in many cases, but rarely depressed, widely separated by a deep groove; clypeus with front margin nearly straight or slightly emarginate, dorsum gently and evenly convex, pubescent-punctures thicker on the lateral and basal areae than on the median and anterior areae; labrum with front margin slightly emarginate at the middle, dorsum convex and bearing the usual transverse row of large pubescent-punctures nearly along the basal margin. Antennae filiform, robust, rather longer than half the length of body, each segments (excepted the 2nd one which is usualy very much shorter than wide) more

Fig. 16. *Lilioceris* (s. str.) *impressa* (Fabricius)

or less longer than wide or the reverse; 3rd slightly shorter than the 4th, 5th longest, 6th to 10th subequal to one another and each one of them longer and thicker than the 4th, 11th rather slenderer than the 10th and bluntly pointed at the apex. Pronotum wider at the anterior portion than the base, strongly constricted on each side at middle; dorsum strongly transversely convex, with two longitudinal rows of punctures on the middle, sparsely punctate on the antrior area, the ante-basal transverse impression as usual. Scutellum obtrigonate, with apex rounded, dorsum thickly pubescent-punctulate. Elytra elongate-subquadrate, much wider at the base than pronotum, somewhat constricted on each side at a little behind the base, rounded at the apex; dorsum convex, transversely impressed at a little behind the base, with the usual regular rows of strong punctures, interstices of these rows of punctures furnished with fine punctures in a longitudinal line on each. Uuderside of thorax and legs very thickly pubescent, with the exception of the median area of metasternum, trochanters and undersides of femora which are very sparsely pubescent; abdomen rather thickly or sparsely and unevenly pubescent.

**Length:** 7.0 - 10.0 mm.

**Loc. Distr.** - Mt. Sô-zan, Sitisei-Gun, Taihoku-Syû (1 Ex., 17. VI. 1931,; 2 Exs., 10. VI. 1932; 1 Ex., 15. VI. 1936; M. Chûjô leg.); Taihoku-Si, Taihoku-Syû (3 Exs., 20. IV. 1932; 3 Exs., 9. IV. 1933; 2 Exs., 25. IV. 1934; 1 Ex., 5. V. 1936; M. Chûjô leg.); Hokutô, Sitisei-Gun, Taihoku-Syû (2 Exs., 5. VI. 1932, M. Chûjô leg.); Mt. Ebosi-yama, Ratô-Gun, Taihoku-Syû ( 1 Ex., 17-21. V. 1933; 1 Ex., 26. VII. 1940; M. Chûjô leg.); Siigao, Tikutô-Gun, Sintiku-Syû (8 Exs., 27-30. VI. 1934, M. Chûjô leg.); Kuaru, Kôsyun-Gun, Takao-Syû (5 Exs., 28. III. 1935; 1 Ex., 12. VI. 1937; 3 Exs. 20. VI. 1937; M. Chûjô leg.); Inoue, Tikutô-Gun, Sintiku-Syû (3 Exs., 22. VII. 1935, M. Chûjô leg.); Rimogan, Bunzan-Gun, Taihoku-Syû (1 Ex., 5. IV. 1940, M. Chûjô leg.); Takeya, Nôkô-Gun, Taityu-Syû (4 Exs., 8. VII. 1940, M. Chûjô leg.); Hatono-sawa, Ratô-Gun, Taihoku-Syû (1 Ex., 22. VII. 1940, M. Chûjô leg.).

Taihoku, Kappanzan, Urai, Rimogan, Hinokiyama, Kayahara, Kobayashi, Tabô, Shinchiku, Taiheizan, Nisui, Horisha, Suisha, Musha, Shyônôryô, Funkiko, Arisan, Raisha, Kwanshirei, Naifunpo, Rakuraku, Rikiriki, Kôshun, Kuraru, Dômon and Hôkotô (after M. Chûjô, 1933); Paroe and Chôsôkei (after M. Chûjô, 1934).

**Gen. Distr.** - India, Ceylon, Burma, Thailand, Andaman Isls., Nicobar Isls., Malayan Isls., Philippines and Formosa.

## Genus Lema Fabricius

*Lema* Fabricius, Suppl. Ent. Syst., p. 90 (1798); Syst. Eleuth , I, p. 471 (1801).- Lacordaire, Monogr. Phytoph., I (Mém. Soc. Roy. Sci. Liége, III), pp. 226 & 303-308 (1845).- C. G. Thomson, Skandinaviens Col., VIII, p. 140 (1866).- Chapuis, in Lacordaire, Hist. Nat. Ins.: Gen. Col., X, p. 72 (1874).- Weise, Naturg. Ins. Deutschlands, VI, p. 59 (1882).- Fowler, Col. British Isls., IV, pp. 280 & 281 (1890).- Everts, Col. Neerlandica, II, pp. 391 & 406 (1903).- Jacoby et Clavareau, in Wytsman, Gen. Ins., XXIII, Col. Phytoph.: *Crioceridae*, pp. 2 & 5 (1904).- Jacoby, Fauna Brit. India, incl. Ceylon and Burma: Col. II, Chrysom. 1, pp. 12 & 15-16 (1908). - Reitter, Fauna Germaica, IV, pp. 79 & 81 (1912).- Kuhnt, Illustr. Best.-Tab. Käf Deutschlands,. pp. 802 & 817 (1913).- Schaufuss, in Calwer, Käferbuch, ed. 6, II, pp. 901-902, 1907-

1916 (1913).- Scheerpeltz et Winkler, in Brohmer, etc., Tierwelt Mitteleuropas, V, ii, 2, p. XII-221 (1930).- Joy, Pract. Handb. British Beetles, I, pp. 389 & 392 (1932).- Kuwayama, Journ. Fac. Agr., Hokkaidô Imp. Univ., Sapporo, Japan, XXXIII, 1, p. 67 (1932).- Chujo Sylvia (Forest Club Quarterly, College of Agr. & Forest., Taihoku Imp. Univ., Taiwan), IV, 1, pp. 19-20 (1933).- Gressitt, Lingnan Sci. Journ., XX, 2-4, pp. 296 & 304 (1942).

*Criceeris* Olivier (Hist. Nat. Ins.), VI, pp. 721-728 (1933).

*Oulema* des Gozis, Récherche, p. 33 (1886).

*Ulema* (pro *Oul-* des Gozis, 1886) Bedel, Faune Col. Bassin Seine, V, p. 116 (1889).

**Genotype:** *Lema cyanella* (Linné), Syst. Nat., ed. 10, p. 376 (*Chrysomela*) (1758), from Europe [Fiexd by M. Jacoby in Fauna Brit. India, incl. Ceylon and Burma: Col. II., Ghrysom. I, p. 15 (1908)].

**Range:** Cosmopolitan.

**General characters:** Body elongate, with sides parallel to each other or more or less rounded; head, antennae, underside and legs more or less finely pubescent; pronotum and elytra generally glabrous, but rarely elytra finely pubescent [(Subgenus *Trichonotolema* Heinze, Ent. Blätt., XXIII, 4, p. 165 (1927)]; scutellum in many cases more or less finely pubescent, but not rarely glabrous.

Head short or rather long, well porrect, strongly constricted on each side behind the eyes, the constrictions connected to eacd other acrossing the dorsal surface or not; neck-region more or less convex, glabrous, generally punctate; frons trigonate, sharply limited from the lateral areae by the X-shaped groove (frontal groove), more or less convex, generally more less punctulate and pubescent-punctulate on each side, frequently with a central longitudinal groove or fovea; orbital areae reticulate-punctate or rugose-punctate, the punctures bearing a pubescence in each centre; frontal tubercles subtrigonate or subquadrate, distinctly delimited from the surrounding areae, frequently more or less punctulate, completely glabrous or more or less finely pubescent on the posterior area; clypeus subtrigonal or subpentagonal, somewhat convex, generally more or less punctulate and pubescent-punctate. Mouth-parts: labrum transverse, narrowed anteriorly, rounded and finely pubescent at the front corners, straight or round or emarginate at the front margin, somewhat convex on the dorsum, but more or less depressed or bending downwardly at the anterior marginal area, with a transverse row of several pubescent-punctures near the middle or the base; mandibles robust, incuved, with apex bi- or tridentate; maxillary palpi slender or rather robust, with 1st segment much smaller than any one of the three followings, the latters variable in their size and shape; labium with front margin of ligula emarginate at the middle and rounded at the front corners; labial palpi slender or rather robust, with 1st segment usually very much smaller than any one of the two succeedings, the latters variable in shape and size. Eyes rounded or ovate or oblong, strongly or weakly convex, with inner margin entire or weakly to strongly notched. Antennae filiform, nearly half or more than half as long as the body, but always much shorter than the whole length of body, with 1st segment thickened and very sparsely pubescent, 2nd generally shortest and sparsely pubescent, 3rd and 4th usually slenderer than the 1st and rather thickly pubescent, 5th to 11th more or less thickened, thicker than the 4th or 3rd, with

apex of the 11th more or less pointed. Pronotum subcylindrical or subquadrate, strongly constricted on each side, the position of the constriction being situated at just, or a little behind, the middle in one case, but in another case it is closely approaching to the base; front margin entirely or laterally bordered, lateral margins not bordered and furnished with a distinct setigerous puncture on a little behind the anterior end (the punctured area generally more or less prominent laterally) and also near the posterior end, basal margin always distinctly bordered; dorsum transversely convex, with an ante-basal transverse impression which terminates laterally into the lateral constriction, sometimes with another ante-median transverse impression which is frequently obliterated at the middle, rarely without any transverse impression (Subgenus *Microlema* Pic). Scutellum small, narrowed posteriorly, rounded or truncated at the apex, longitudinally convex on the dorsum. Elytra elongate-subquadarte, much wider at the base than pronotum, lateral margins parallel to each other or gentlty rounded and often slightly constricted before the middle, rounded at the apex, the latter separately rounded, but rarely emarginate and the apex of sutural margin denticulated; dorsum convex, generally with a transverse impression on a little behind the base and median area nearly flat; each eyltron with ten longitudinal regular rows of punctures, the punctures generally very large and deep on the basal area, but becoming feebler posteriorly, in many cases with a short row of the similar large punctures near the scutellum (so-called the short scutellar row of punctures) (Subgenus *Lema* s. str.), but not rarely without such a row (Subgenus *Bradylema* Weise) or very rarely with a similar row of much smaller punctures (Subgenus *Microlema* Pic). Underside: prosternum short, thickly punctured or rugosely punctured; prosternal process very narrow or linear between the fore-coxae, reaching to the apices of pro-epimera, the latters touching to each other and on account of these caharacter acetabulae closed behind; mesosternum distinct between the middle-coxae, generally thickly punctured or rugosely punctured, with apex not covered by metasternum and truncated or emarginated; meso-pleurae and meta-episterna thickly punctured; metasternum large, with median area nearly or completely impunctured, but more or less punctured on the marginal (especially on the lateral) areae; abdomen with five visible sternites, thickly punctured, but generally the median area of three or four basal sternites nearly or completely impunctate. Legs: fore-coxae conico-cylindrical, strongly prominent, nearly or completely contiguous; middle-coxae globular, distinctly separated from one another; hind-coxae transverse oblong, much distant to each other; femora somewhat incrassate medially, generally the middle-pair rather longer than the fore-pair but shorter and slenderer than the hind-pair; tibiae simple, gently thickened terminally, always armed with a pair of spur at the apex of lower side, sometimes more or less curved or slightly sinuate and the length attendly varies with the variety of the length of femora; tarsi with two basal segments trigonate, generally the 1st segment longer than the 2nd, 3rd segment deeply bilobed, claw-segment club-shaped and more or less curved; claws surely fused together at the base, in one case unciform and gradually acuminated terminally, but in another case more or less flat and obliquely truncated (the grade of the truncation variable in the species).

**Male** with the secondary sexual character on the legs in some cases, viz. - hind-femora unidentate or unispinose at the apical area of lower side, middle-tibiae unidente or unispinose at or near the middle of lower side, etc.

This genus may be divided into several subgenera, of which the four ones are occuring in the Formosan fauna separated as follows:

## Key to the Subgenera

a. Elytra without the scutellar row of punctures ........................................ *Bradylema* Weise

a'. Elytra with the short scutellar row of punctures ........................................ (b)

b. Punctures consisting of the scutellar row much smaller than those of the other ordinary rows, pronotum without any transverse impression ........................................ *Microlema* Pic

d'. Punctures consisting of the scutellar row similar to those of the other ordinary rows, pronotum with one or two transverse impression; ........................................ (c)

c. Frons not abbreviated, not wider than long, with front angle distinctly smaller than 90° in angulation, generally distinctly limited from the neck-region by a transverse impression and separately convex from the latter area; pronotum strongly constricted on each side at just, or a little behind, the middle, generally with one or two transverse impressions whichare laterally terminating into the lateral constriction ........................................ *Sulcatolema* Pic

c'. Frons strongly abbreviated, much wider than long, with front angles distinctly larger than 90° in angulation, not limited from the neck-region and commonly convex with the latter area; pronotum widened in front, constricted on each side at just, or a little, before the base, with a transverse impression, which terminates laterally into the lateral constriction, nearly along the basal margin ........................................ *Lema* s. str.

## Subgenus Bradylema Weise

*Bradylema* Weise, Arch. f. Naturg., LXVII, p. 146 (1901).— Jacoby et Clavareau, in Wytsman, Gen. Ins., XXIII, Col. Phytoph.: *Crioceridie*, p.5 (1904).– Heinze, Mitteil. Zool. Mus. Berlin, XIV, 1, pp. 45-46 (1927); Rev. Zool. Bot. Afrique, XX, 1, p. 28 (1930); Wiener Ent. Zeit., XLVIII, 4, p. 183 (1931).

*Petauristes* (nec Latreille, 1825 & 1829) Guérin-Méneville, Iconogr. Règne Anim., p 259 (1844).

*Bradylemoides* Heinze, Rev. Zool. Bot. Afrique, XX, 1, p. 28 (1930).

**Subgenotype:** *Lema grandis* Klug, Abh. Ak. Wiss. Berlin, p. 121 (1833), from Madagascar.

**Range:** Africa and S.-E. Asia.

**General characters:** Body medium to large, elongate-subquadrate or elongate-oblong. Head strongly constricted and deeply grooved on each side at a little behind the eyes, the constrictions connected to each other by a transvesrel impression acrossing the dorsal surface; frontal groove deep, but shallowed at each posterior portion, completely or rather incompletely reaching to the post-ocular groove; frons trigonate, distinctly or rather indistinctly delimited from the neck-region, more or less convex, with a central longitudinal fovea or a short groove on the basal area, minutely punctulate, sparsely pubescent-punctate; frontal tubercles subtrigonate or subquadrate, distinctly limited from the surrounding areae, widely separated from one another by the posterior portion of clypeus, more or less convex, minutely punctulate, glabrous; clypeus nearly obpentagonal, with front margin straight or gently emarginate, somewhat convex on the dorsum, minutely punctulate throughout, rather sparsely or thickly pubescent-punctate,

the pubescent-punctures thicker on the lateral areae than on the median area, glabrous on the anterior marginal area. Mouth-parts: maxillary palpi rather sleder (Subg. *Bradylema* s. str., by Heinze, 1930) to strongly incrassate (Subg. *Bradylemoides* Heinze, 1930), with 1st segment very small, 2nd distinctly thickened terminally and generally rather longer than the last (4th) segment, 3rd 4th longer and much thicker than the 1st, but usually shorter than the 2nd or 4th, 4th nearly elongate-conical to shortly ovate or subglobular; labial palpi slender to rather robust, with 1st segment minute, 2nd thickened terminally, 3rd conical or oblong. Eyes large, ovate or oblong, with inner margin deeply notched. Pronotum subquadrate, strongly constricted on each side at or just behind the middle, with the ante-basal transverse impression which is frequently very weakened or almost obliterated at the middle, sometimes with the ante-median transverse impression which is generally obliterated at the middle. Scutellum small, gently narrowed posteriorly, simply truncated or strongly bending downwardly at the apex, longitudinally convex and extremely finely but not thickly pubescent-punctulate on the dorsum. Elytra with the apex simply rounded, not emarginate; each elytron with ten regular longitudinal rows of large punctures, without the short scutellar row of the similar punctures, but in some cases the area replaced by a row of very fine punctures.

♂ (not usually!): (1) Hind- and middle-femora unidentate on each lower side near the apex, hind-tibiae also unidentate on each lower side near or before the middle. (2) Hind-femora and hind-tibiae unidentate as in the above case, but middle-femora unarmed. (3) Hind-femora unidentate as in the former case, but hind-tibiae and middle-femora unarmed. (4) Hind-femora slightly angulated near the apex of each lower side, hind-tibiae and middle-femora simple.

This subgenus was first established as a distinct genus by J. Weise (1901) with a elytral character (elytra without the short scutellar row of large punctures) and his idea was supported by E. Heinze (1927, 1930 & 1931). And, moreover, E. Heinze (1930) divided the genus in two subgenera by the character of maxillary palpi (maxillary palpi slender ···*Bradylema* s. str.; maxillary palpi strongly incrassate ··· *Bradylemoides*). On the other hand, however, M. Jacoby and H. Clavareau (1904) treated the genus as a synonym of the genus *Lema* Fabricius. I think it will be convenient to treat the *Bradylema* Weise as a subgenus of the large genus *Lema* Fabricius by the elytral character. The Heinze's distinction by the character of maxillary palpi will not be thought as scientific one, because we may be able to see the character continuously varies from slender-form to strongly incrassate one by the species.

**Key to the Species**

1. Elytra metallic blue ·············································· (2)
1'. Elytra not metallic ·············································· (3)
2. General colour reddish brown; elytra metallic blue, sometimes with a slight greenish or violaceous shimmer ·············································· *postrema* Bates
2'. Head and prothorax dark reddish; elytra, underside and legs metallic deep or dark blue; antennae (with one or two basal segments reddish), scutellum and apices of legs blackiish ·············································· *honorata* Baly

3. General colour yellowish brown, with antennae (excepted the two basal segments), tibiae and tarsi black ............................................................ *unicolor* Clark

3'. General colour yellowish brown to reddish brown, with elytra maculated ......................... (4)

4. Elytra with two quadrate or subpuadrate black makings on each elytron, pronotum not maculated with black ............................................................ *koshunensis* Chûjô

4'. Elytra with a broad black stripe on each elytron from the base to near the apex, pronotum with two transversely settled black spots ......................................... *koshunensis* var. *kurosuzi* nov.

## 8. Lema (Bradylema) postrema Bates

*Lema postrema* Bates, Proc. Zool. Soc. London, p. 353 (1866) (Formosa). – Gemminger et Harold, Cat. Col., XI, p. 3259 (1874) (Formosa). – Jacoby et Clavareau, in Wytsman, Gen. Ins., XXIII, p. 7 (1904) (Formosa). – Clavareau, in Junk et Schenkling, Col. Cat, LI, p. 74 (1913) (Formosa). – Miwa, Syst. Cat. Formosan Col., p. 185 (1931) (Formosa: Taihoku). – Kuwayama, Journ. Fac. Agr., Hokkaidô Imp. Univ., XXXIX, 1, pp. 74–75 & 82 (as a synonym of *Lema fortunei* Baly, 1859) (1932) (Formosa: Shoka). – Chûjô, Sylvia, IV, 1, pp. 22, 36, 61 & 62–63 (1933) (Formosa: Kuraru, Heirinbi, Arisan, Kôshun & Horisha); Arb. Morph. Taxon. Ent. Berlin-Dahlem, I, 4, p. 281 (1934) (Formosa: Kankau & Chôsôkei).

Body rather large, elongate-subquadrate, parallel-sided. General colour reddish brown, lustrous; antennae black, with 1st segment reddish brown; mouth-parts sometimes infuscated partially; elytra metallic blue, strongly lustrous, with a slight greenish or violaceous shimmer in some cases; apices of tibiae and tarsi more or less infuscated.

Head: post-ocular constrictions distinctly connected to each other by a transverse impression acrossing the dorsal surface; frontal groove deep, gently sinuate, distinctly shallowed at each posterior portion and rather markedly connected to the post-ocular groove; frons rather longer than wide, structured as usual; frontal tubercles subquadrate, glabrous; clypeus with front margin nearly straight, anterior marginal area narrowly depressed, lateral areae very sparsely pubescent-punctate; maxillary palpi strongly incrassate, with last segment nearly oval and much longer than the penultimate segment. Antennae filiform, somewhat longer than half the length of body; 1st segment strongly subglobularly thickened, 2nd very much shorter than any one of the others, cylindrical and rather shorter than wide, 3rd longer and slenderer than the 1st, 4th rather longer than the 3rd, 5th longest, the six followings subequal to one another and each one of them rather longer and thicker than the 4th, with the apex of 11th pointed. Pronotum subcylindrical, rather longer than wide, strongly constricted on each side at middle; dorsum very strongly transversely convex, extremely finely punctulate, with some larger punctures on the latero-anterior areae confusedly, on the anterior marginal area in a transverse line and also on the middle in a ⊥-shape which is consiting of more than one rows of the punctures, and also with a rather faint ante-basal transverse impression as usual. Scutellum with apical area strongly bend- ing downwardly, basal line of the bending area straight or emarginate and the apical margin bi- or trisinuate, very finely but not thickly pubescent-punctulate on the dorsum. Elytra elongate, parallel-sided; dorsum convex, with a transverse impression between the base and middle, strongly punctate in ten longitudinal rows on each elytron as usual interstices of these regular rows of large punctures very finely but sparsely punctulate in a longitudinal row on each, without the short scutellar row of the large punctures, but

the area occupied by a short row of several very fine puuctures.

**Length**: 7.0–8.25 mm.

**Loc. Distr.** - Kuaru, Kôsyun-Gun, Takao-Syû (1 Ex., 16. VI. 1937, M. Chûjô leg.); Takeya, Nôkô-Gun, Taityû-Syû (1 Ex., 8. VII. 1940, M. Chûjô leg.).

Taihoku (after Y. Miwa, 1931); Shoka (after S. Kuwayama, 1932); Kurarn, Heirinbi, Arisan and Horisha (after M. Chûjô, 1933); Kankau (Kôshun) and Chôsôkei (after M. Chûjô, 1934).

**Gen. Distr.**- Formosa.

## 9. Lema (Bradylema) honorata Baly

*Lema honorata* Baly, Trans. Ent. Soc. London, p. 73 (1873) (Japan: Nagasaki).- Gemminger et Harold, Cat. Col., XI, p. 3255 (1874) (Japan: Nagasaki).- Lewis, Cat. Col. Japanese Archipelago, p. 27 (1879) (Japan).- Jacoby, Proc. Zool. Soc. London, p. 752 (1885) (Japan).- Schönfeldt, Cat. Col. Japan, p. 143 (1887) (Japan: Nagasaki).- Jacoby et Clavareau, in Wytsman, Gen. Ins., XXIII, p. 7 (1904) (Japan: Nagasaki).- Clavareau, in Junk et Schenkling, Col. Cat., LI, p. 66 (1913) (Japan: Nagasaki).- Winkler, Cat. Col. Reg. Palaearcticae, II, 10, p. 1232 (1929) (Japan).- Kuwayama, Journ. Fac. Agr., Hokkaidô Imp. Univ., XXXIX, 1, pp. 73-74 & 82 (1932) (Japan: Hyûga, Iwate, Morioka, Mt. Takao, Komaba, Shizuoka, Mt. Iwawaki, Nara, Ise, Mt. Kinkwa, Takasago, Hagi, Iyo, Koyadaira, Mizoro-Ike, Wakasugiyama & Hikosan).- Chûjô, Sylvia, IV, 1, pp. 22, 34, 60 & 63 (1933) (Japan: Nagasaki); Arb. Morph. Taxon. Ent. Berlin-Dahlem, I, 4, p. 282 (1934) (Formosa: Kankau); Bull. Umeno Ent. Lab., 2, p. 13 (1935) (Japan: Kurume).- Kusanagi, Kontyû-Kai, IV, 27, p. 310 (1936) (Japan: Gunge in Kagawa-Ken & Kurozon in Kôti-Ken).- Baba, Sizen-Kenkyû, 5, p. 74 (1936) (Japan: Sado-ga-Sima).- Yamamoto, Kagaku-no-Nôgyô, XVII, 4, p. 122 (1937) (Japan: Sado-ga-Sima).- Chûjô Trans. Nat. Hist. Soc. Formosa, XXVII, 171, p. 271 (1937) (Japan: Sado-ga-Sima); l.c., p. 277 (1937) (Japan: Awa-Sima); Mushi, XI, 2, p. 159 (1938) (N. China: Tsingtao); Trans. Nat. Hist. Soc. Formosa, XXX, 204, p. 353 (1940) (Korea: Mt. Syôyô-zan).- Gressitt, Lingnan Sci. Journ., XX, 2-4, p. 306 (1942).

Body medium in size, elongate-subquadrate, parallel-sided. Head and prothorax rather dark reddish, lustrous; antennae black, with the one or two basal segments dark reddish; scutellum shiny black; elytra deep metallic blue, strongly lustrous, with a slight greenish or violaceous shimmer in some cases; meso- and metasternum and abdomen dark metallic blue or blue-black, meso- and metapleura simply black or with a slight dark metallic blue shimmer partially; legs: fore-coxae and all trochanters rather dark reddish, middle- and hind-coxae black, with a slight dark metallic blue shimmer partially and anterior areae of middle-coxae frequently piceous or dark reddish, femora dark metallic blue or blue-black, tibiae and tarsi piceous to black and sometimes tibiae with a very slight dark metallic blue shimmer.

Head: post-ocular constrictions connected to each other by a transverse impression acrossing the dorsal surface in some cases, but in other cases almost unconnected; frontal groove distinct, but not connected to the post-ocular groove at each posterior end; frontal tubercles subtrigonate, finely but sparsely punctulate; clypeus with front margin nearly straight, anterior marginal area not convex and glabrous; maxillary palpi rather slender, with last segment nearly elongate-conical and longer but slenderer than the penultimate segment. Antennae filiform, about half as long as the body; 1st segment strongly thickened and subquadrate-cylindrical, 2nd shortest, subcylindrical and not longer than wide, 3rd nearly equal in length to, but much slenderer than, the 1st, 4th rather longer and thicker than the 3rd, the seven followings very strongly thickened

and elongate, 5th longest, 6th and 7th nearly equal in length and thickness to each other, 8th rather shorter and slenderer than the 7th, from the 8th to 10th the segments gradually diminishing their length and thickness terminally, 11th rather longer but slenderer than the 10th and bluntly pointed at the apex. Pronotum subquadrate, rather longer than wide, strongly constricted on each side at middle; dorsum very strogly transversely convex, very finely punctulate throughout, with a few larger punctures on each latero-anterior area, two or more longitudinal rows of similar large punctures on the middle and a transverse impression a little before the basal margin, the impression terminating laterally as usual. Scutellum with apex nearly straightly truncated in some cases, but in other cases rounded or emarginate-depressed, very finely but not very thickly pubescent-punctulate. Elytra elongate, parallel-sided; dorsum convex, with a transverse depression on the middle of a little behind the base, regularly punctate in ten longitudinal rows as usual, interstices of these regular rows of large punctures very finely but sparsely punctulate in a longitudinal row on each, without the short scutellar row of large punctures, but the place replaced by a row of very fine punctures.

**Length:** 6.0 – 7. 0 mm.

**Food-plant:** *Dioscorea japonica* Thunb. (Japanese name: *Yamanoimo*).

**Loc. Distr.** - Kuaru, Kôsyun–Gun, Takao–Syû (1Ex., 11.VI.1937; 1Ex., 16.VI.1937; M. Chûjô leg.). Kankau (Kôshun) (sfter M. Chûjô 1934).

**Gen. Distr.** - Japan proper (Honsyû, Sado-ga-Sima, Awa-Sima, Sikoku & Kyûsyû), Korea, Formosa and N. China.

## 10. Lema (Bradylema) unicolor CLARK

*Lema unicolor* Clark, Append. Cat. Phytoph., p. 23 (1865) (China); Cat. Phytoph., I, p. 23 (1866) (China). – Gemminger et Harold, Cat. Col., XI, p. 3262 (1874) (China). – Jacoby et Clavareau, in Wytsman, Gen. Ins., XXIII, p. 8 (1904) (China).– Clavareau, in Junk et Schenkling, Col. Cat., LI, p. 82 (1913) (China). – Winkler, Cat. Col. Reg. Palaearcticae, II, 10, p. 1232 (1929) (China).– Miwa, Syst. Cat. Formosan Col., p. 184 (1931) (Formosa: Taihoku & Horisha).– Chûjô Sylvia, IV, 1, pp. 21, 23, 61 & 64 (1933) (Formosa: Horisha, Taihoku & Rengechi); Arb. Morph. Taxon. Ent. Berlin-Dahlem, IV, 1, p. 282 (1934) (Formosa: Hoozan).– Ho, in Wu, Cat. Ins. Sinensium, III, p. 785 (1937) (China).

Body large, elongate-quadrate, subparallel-sided. General colour yellowish brown, lustrous, with antennae (excepted the two basal segments), tibiae and tarsi black.

Head: post-ocular constrictions not distinctly grooved at each bottom, connected to each other by a shallow transverse impression acrossing the dorsal surface; frontal groove deep, ending before the post-ocular groove; frons with a short longitudinal costa, which is becoming stronger forwardly, on the middle of anterior area and an elongate longitudinal fovea on the middle of basal area; frontal tubercles subtriangular, finely punctulate, glabrous; clypeus with front margin straight, a distinct longitudinal fovea in the middle and anterior marginal area not convex in a short distance; mandibles with right one bifidate at the apex and left one trifidate; maxillary palpi slender, with 2nd segment longest and thickest, 3rd nearly equal in length to, or slightly shorter than, the 4th, the latter nearly conical or elongate-conical with blunt head and slenderer

Fig. 17. *Lema (Bradylema) unicolor* Clark

than the preceding one. Antennae filiform, about half as long as the body; 1st segment very strongly thickened and subquadrate-cylindrical, 2nd very much shorter than any one of the others and moniliform, 3rd and 4th nearly equal in shape and size and nearly equal in length to the 1st but much slenderer; the seven succeedings very strongly thickened and elongate, 5th longest and nearly equal in length to the two precedings together, 6th and 8th to 10th nearly equal in length to one another and each one of them shorter than the 7th but much longer than the 4th, 7th and 11th nearly equal in length to each other, with the apex of 11th pointed. Pronotum subquadrate, rather longer than wide, widest at the base, strongly constricted on each side at middle; dorsum strongly transversely convex, rather finely punctate on the anterior, median and post-median areae as like as a I-shape, with a weak ante-basal transverse impression which is frequently obliterated at the middle and also with a large puncture just before the middle of ante-basal transverse impression, the puncture often surrounded by a rounded or elongate shallow impression. Scutellum with apical area perpendicularly bending downwardly in a very short distance, basal line of the apical bended-area emarginated, finely but not thickly pubescent-punctulate on the dorsum. Elytra elongate, nearly parallel-sided; dorsum convex, shallowly transversely depressed on the middle of a little behind the scutellum, strongly and regularly punctate in ten longitudinal rows on each elytron as usual, interstices of these regular rows of large punctures bearing a longitudinal row of fine punctures on each, without the short scutellar row of large punctures, but the area replaced by a short row of fine punctures.

**Length:** 10.0 – 11.5 mm.

**Food-plant:** *Arundina chinensis* Blume (Japanese name: *Nariya-ran*).

**Loc. Distr.** - Taihoku-Si, Taihoku-Syû (2 Exs., 5.IX.1932, M. Chûjô leg); Habon, Bunzan-Gun, Taihoku-Syû (2 Exs., 25.IX.1939, R. Takahashi leg.).

Taihoku and Horisha (after Y. Miwa, 1931); Horisha, Taihoku and Rengechi (after M. Chûjô, 1933); Hoozan (after M. Chûjô 1934).

**Gen. Distr.** - China and Formosa.

## 12. Lema (Bradylema) koshunesis CHÛJÔ

*Lema koshunensis* Chûjô, Arb. Morph. Taxon. Ent. Berlin-Dahlem, I, 4, pp. 282–283 (1934) (Formosa: Kankau in Kôshun-Distr.).

Body medium in size, elongate-subquadrate, parallel-sided. General colour yellowish brown or reddish brown, lustrous; antennae black, with one or two basal segments and undersides of a few terminal segments yellowish brown; each elytron decorated with two large black markings, the one of them quadrate in shape and situated at the base, the other one elongate-subquadrate and placed near the apex; metasternum stained with black on each side or not so; middle- and hind-femora with a black spot on the apical area of each outer face; lateral and apical areae of tibiae and dorsal surfaces of tarsi more or less infuscated.

Head: post-ocular constrictions connected to each other by a transverse impression across-ing the dorsal surface; neck-region very strongly convex, extremely minutely punctulate throughout, with posterior area strongly and sparsely punctate; frontal groove deep, not extending to the post-ocular groove; frons with a strong or faint longitudinal impression in the middle and a large puncture on the middle of base; frontal tubercles subquadrate, nearly

impunctate; clypeus with front margin very slightly emarginate or nearly straight; maxillary palpi strongly thickened, with last segment nearly peach-shaped and distinctly longer than the penultimate segment. Antennae filiform, rather longer than half the length of body; 1st segment strongly thickened and subquadrate-cylindrical, 2nd shortest, rather longer than wide and somewhat thickened terminally, 3rd nearly equal in length to, but much slenderer than, the 1st, 4th longer than the 3rd, the seven succeedings moderately thickened and elongate, 5th longest, 6th to 11th subequal to one another, with the apex of 11th bluntly pointed. Pronotum subquadrate, strongly constricted on each side at middle, widest at a little behind the front margin; dorsum strongly transversely convex, rather thickly punctate on the latero-anterior, anterior-marginal and median areae, with a distinct ante-basal transverse impression which is terminating laterally into the posterior end of lateral constriction and bearing a fovea in the middle. Scutellum with apex somewhat emarginate and dorsum finely but not thickly pubescent-punctulate. Elytra elongate, parallel-sided; dorsum convex, with a faint or rather strong transverse impression on a little behind the base, regularly punctate in ten longitudinal rows on each elytron as usual, interstices of these regular rows of punctures with a longitudinal row of sparsely settled fine punctures, without the short scutellar row of large punctures, but the area replaced by one or more longitudinal short rows of fine punctures.

Fig. 18. *Lema (Bradylema) koshunensis* Chûjô

**Length:** 5.0 – 6.0 mm.

**Loc. Distr.** - Kusukusu, Kôsyun-Gun, Takao-Syû (1 Ex., 20. IV.1928, J. Sonan leg.); Tipon, Taitô-Gun, Taitô-Tyô (1 Ex., 18.VI.1940, M. Chûjô leg.).
Kankau (Kôshun) (after M. Chûjô, 1943.)

**Gen. Distr.** - Formosa.

## 11'. Lema (Bradylema) koshunensis Chûjô var. kurosuzi Chûjô nov.

This new variety differs from the original form in the coloration as follows:

Pronotum with two small, transversely settled, black spots just behind the middle; each elytron with a broad black stripe from the base to near the apex, the stripe not covering the humeral callus and distinctly notched on the inner margin at a little behind the base; meso- and meta-pleura black; metasternum black, with median areae longitudinally yellowish brown; middle-coxae with latero-posterior areaeblack; hind-coxae black, with inferior small area yellowish brown; middle- and hind-femora with a black spot near the apex of outer and inner faces; the other areae concolorous with the original form.

Fig. 19. *Lema (Bradylema) koshunensis* Chûjô var. *kurosuzi* Chûjô nov.

**Length:** 6.5 mm.

**Loc. Distr.** - Ebosi-yama (altitude about 500 metres), Ratô-Gun, Taihoku-Syû (1 Ex., **Holotype**, 17-21.V.1938, M. Chûjô leg.).

**Gen. Distr.** - Formosa.

## Subgenus Microlema Pic

*Microlema* Pic, Mélanges Exot.-Ent., LX, p. 33 (1932) (nom. nov. for *Pseudolema* Pic, 1928).
*Pseudolema* Pic, Bull Soc. Ent. France, p. 96 (1928) (preoc. by M. Jacoby for another group of the Subfamily *Criocerinae* in 1903).

**Subgenotype:** *Lema akinini* Heyden, Deutsche Ent. Zeitschr., XXXI, 2, pp. 323-324 (1887), from Turkestan [Designated by M. Pic, Mélanges Exot.-Ent., LX, p. 33 (1932)]. [*Lema akinini* Heyden is a variety of *L. quadrimaculata* Gebler, Bull. Akad. St. Petersburg, III, p. 105 (1845), from Siberia].

**Range:** Siberia, Turkestan, N. China, Manchuria, Korea and Japan.

**General characters:** Head very strongly and confusedly punctured; frons not distinctly delimited from the neck-region, with a large and deep longitudinal fovea on the middle of base; frontal groove not connected to the post-ocular groove with the same depth; inter-ocular space very wide; frontal tubercles distinct, but not sharply delimited from behind by the suture or groove, widely separated to each other by the posterior area of clypeus between them; maxillary palpi rather robust, with last segment nearly elongate-oval and rather slenderer but much longer than the penultimate segment. Eyes shortly ovate, slightly emarginate at the inner margin, strongly convex, finely facetted. Antennae filiform, robust, about half, or rather less than half, the length of body, with seven terminal segments only a little longer than wide. Pronotum subquadrate, strongly constricted on each side at middle, with front margin nearly entirely immarginated or very narrowly bordered on each side and basal margin very narrowly bordered, but the latter border obliterated at the middle in some cases; dorsum transversely convex, with a large longitudinal fovea between the centre and basal margin of disc, the latter margin nearly straight or very gently sinuate, without an usual ante-basal transverse impression. Elytra with ten regular longitudinal rows of large punctures on each elytron, without the short scutellar row of the large punctures, but the place occupied by a few smaller punctures (the comparative size of the punctures against those of the former regular rows are much larger than in some cases of the Genus *Bradylema* Weise). Legs without sexual dimorphisms.

Besides the subgenotype-species, *Lema decempunctata* Gebler and its subspecies or variety (the latter forms are occuring in Japan and Korea) are belonging to this subgenus.

## Subgenus Sulcatolema Pic

*Sulcatolema* Pic, Bull. Soc. Ent. France, p. 96 (1928).

**Subgenotype:** *Lema coromandeliana* (Fabricius), Suppl. Ent. Syst., p. 154 (*Leptura*) (1798), from Tranquebar [Designated by M. Pic, Bull. Soc. Ent. France, p. 96 (1928)].

**Range:** Cosmopolitan.

**General characters:** Body rather small to medium in size, elongate-subcylindrical or elongate-oval in shape. Head strongly constricted on each side at a little behind the eyes, the constrictions occupied the bottom by a deep groove and connected to each other by a distinct transverse impression in many cases, but sometimes neither grooved nor connected (in the latter case the neck-region well limited from frons by the different

convexity of these two areae); frontal groove well marked, connected to the post-ocular groove (when present); frons trigonate, not wider than long, more or less prominent forwardly at the front end, convex on the dorsum, generally more or less pubescent-punctate, with a central longitudinal fovea or groove; frontal tubercles subtrigonate or subquadrate, distinctly limited from the surrounding areae, widely separated to each other by the posterior area of clypeus or the anterior angulated area of frontal groove, entirely glabrous or nearly so; clypeus nearly obpentagonal, with front margin straight or gently emarginate, convex on the dorsum and more or less pubescent-punctate. Mouth-parts: maxillary palpi slender, with 1st segment very small, 2nd and 3rd distinctly thickened terminally and the former longer than the latter, last (4th) segment elongate-conical and longer than the penultimate one; labial palpi rather slender, with 1st segment minute, 2nd distinctly thickened terminally, last (3rd) segment conical or oval or oblong. Eyes oval, convex, finely facetted, deeply notched at the inner margin. Pronotum subquadrate, strongly constricted on each side at, or just behind, the middle; dorsum strongly transversely convex, with the ante-basal transverse impression which terminates laterally into the posterior end of the lateral constriction, sometimes with the ante-median transverse impression which is also terminating laterally into the anterior end of the lateral constriction, but the latter ante-median transvers imperssion frequently obliterated at the middle (this fact may often be seen not only between the different species but among the individuals of the same species). Scutellum small, more or less narrowed posteriorly, truncated or emarginated at the apex, longitudinally convex on the dorsum, generally very finely but not very thickly pubescent-punctulate. Elytra with apex simply rounded, not emarginate; each elytron with ten regular longitudinal rows of large punctures and the short scutellar row of the similar large punctures.

This subgenus is including a most number of the species of Genus *Lema* Fabricius and closely allied to the members of Genus *Lilioceris* in the general appearance and structure, but may be distinguished by the claws (which is simply and gradually acuminated terminally) distinctly fused together at the base.

### Key to the Species

1. Frons not distinctly delimited from the neck-region and commonly convex with the latter area ···(2)
1'. Frons distinctly delimited from the neck-region and separately convex with the latter area ········ (3)
2. General colour yellowish brown, with anterior area of head, antennae, underside and apical portions of legs more or less infuscated ········································ *paagai* Chûjô
2'. General colour deep metallic blue, with a dark reddish transverse marking on each posterior end of frons and simply black antennae (excepted the four basal segments) ················ *persicariae* Chûjô
3. Middle-tibiae with a strong (♂) or obtuse (♀) denticulation near the middle on the lower side; head, elytra and metathorax metallic blue; antennae, mouth-parts, mesothorax (partly or entirely) and apices of femora black; apices of tibiae and tarsi more or less infuscated; the remaining areae, together with the neck-region and apex of elytra, reddish brown ··············· *formosana* Kuwayama
3'. Middle-tibiae without a denticulation as in above ········································ (4)
4. Elytra metallic in coloration ········································ (5)
4'. Elytra not metallic in coloration ········································ (6)
5. General colour deep metallic blue, with antennae, legs, median area of metasternum and three basal

sternites of abdomen black, and two apical abdominal sternitis yellowish brown to reddish brown ........................................................................................................ *concinnipennis* Baly

5'. Head and prothorax brownish red; antennae black, with four basal segments metallic blue-black; scutellum pitchy red to black; elytra deep metallic blue or greenish blue, frequently with a slight golden or cupreous shimmer; underside and legs metallic blue-black, with a slight cupreous shimmer in many cases, but in some cases mesosternum and median areae of metasternum and 1st abdominal sternite dark or pitchy red ........................................................ *takara* Chûjô

6. General colour yellowish brown, with antennae (cxcepted the basal one or two and terminal one or two segments) black, apices of tibiae and tarsi moe or less infuscated ............... *nitobei* Chûjô

6'. General colour yellowish brown, with anterior area of head, tibiae and tarsi more or less infuscated; antennae blackish brown to black, with 1st segment entirely yellowish brown and undersides of 2nd to 7th segments rather dark yellowish brown; each elytron decorated with two black markings, the one of them being situated near the base and another just behind the middle......... ........................................................................................................ *esakii* sp. nov.

## 12. Lema (Sulcatolema) paagal CHÛJÔ

*Lema paagai* Chûjô, Sylvia, IV, 1, pp. 20, 25-26, 61 & 63 (1933) (Formosa: Taihoku, Horisha, Heitô, Kuraru, Kôtôsho & Urai); Arb. Morph. Taxon. Ent. Berlin-Dahlem, I, 4, p. 282 (1934) (Formosa: Tainan & Kankau).

Body small, nearly oblong. General colour yellowish brown, lustrous; anterior area of clypeus and labrum black, with their anterior marginal areae dark yellowish brown to piceous, bases and apices of mandibles blackish brown to piceous or black; frons stained with black in some cases; antennae black in general, but two basal segments yellowish brown with their dorsal surfaces blackish brown, and lower surfaces of 3rd and 4th segments light to dark yellowish brown; meso- and metathorax black; abdomen black, with posterior margin of the four basal sternites narrowly light to dark yellowish brown and last sternite with the lateral and apical areae widely yellowish brown, sometimes the lateral areae of four basal sternites also yellowish brown and in these cases the last sternite entirely yellowish brown; legs yellowish brown, with lateral areae of middle- and hind-coxae black, lateral and apical areae of all tibiae and dorsal surfaces of all tarsi dark brown to piceous or black.

Head strongly constricted and deeply grooved on each side slightly behind the eyes, the constriction not propagated dorsally; neck-region strongly convex, extremely finely punctulate; frontal groove distinct, with front angle very widely rounded, connected at each posterior end to the post-ocular groove; fronst rigonate, gently and commonly conve xwith the neck-region, thickly pubescent-punctate throughout and their interspaces microscopically finely punctulate, with a longitudinal groove on the middle and a longitudinal costa on the middle of apical area, the costa becoming stronger anteriorly and prominent forwardly at the apex; frontal tubercles subtriangular, rather thickly pubescent-punctate on the basal area and rather sparsely so or nearly glabrous on the anterior area which is depressed; clypeus nearly obtrigonate, with front margin slightly emarginate, somewhat

Fig. 20. *Lema* (*Sulcatolema*) *paagai* Chûjô

convex and thickly pubescent-punctate on the dorsum, with their interspaces extremely minutely punctulate; maxillary palpi slender, with last segment elongate-conical, bluntly pointed at the apex and longer but slenderer than the penultimate segment. Eyes deeply and triangularly notched at the inner margin. Antennae filiform, rather longer than half the length of body; 1st segment strongly thickened and subquadrate-cylindrical, 2nd shortest and nearly obconical, 3rd somewhat longer but much slenderer than the 1st, 4th nearly equal in length to the 1st and subequal in thickness to the 3rd, the seven followings strongly thickened and elongate, 5th longest, 6th and 8th to 10th nearly equal in length to one another and each one of them longer and thicker than the 3rd, 7th and 11th nearly equal in length to one another and each one of them longer than the 6th, — the order of their length as follows: 5th>7th>11th>6th>8th>9th>10th — and the apex of 11th pointed. Pronotum subquadrate, rather wider than long, widest at a little behind the front margin, strongly constricted on each side behind the middle; dorsum strongly transversely convex, extremely finely punctulate throughout, with a strong ante-basal transverse impression which terminates laterally into the posterior end of lateral constriction and bearing a large puncture in the middle, and also with an ante-median transverse impression which is feebler than the ante-basal impression, obliterated at the middle and terminating laterally into the anterior end of lateral constriction, these two impressions only extremely finely punctulate together with the anterior and basal marginal areae, but the other areae more strongly punctate. Scutellum emarginated at the apex, lightly longitudinally convex and finely pubescent-punctulate on the dorsum. Elytra elongate, gently narrowed posteriorly; dorsum convex, slightly depressed behind the scutellum, very strongly and regularly punctate in ten longitudinal rows on each elytron, with another short scutellar row of similar large punctures, interstices of these regular rows of punctures nearly impunctate. Claws wide, obliquo-inwardly truncated at the apex.

**Length:** 4.5 - 5.5 mm.

**Food-plant:** *Oryza sativa* Linn. (Japanese name: *Ine*).

**Loc. Distr.** - Taihoku, Horisha, Heitô, Kuraru, Kôtôsho and Urai (after M. Chûjô, 1933); Tainan and Kankau (Kôshun) (after M. Chûjô, 1934).

**Gen. Distr.** - Formosa, including Botel-Tobago Isls. (Kôtô-syo).

## 13. Lema (Sulcatolema) persicariae CHÛJÔ

*Lema persicariae* Chûjô, Sylvia, IV, 1, pp. 23, 38-39, 61, 63 &64 (1933) (Formosa: Taitô, Musha, Kuraru, Sôzan & Urai).

Body small, elongate-quadrate, parallel-sided. General colour deep metallic blue, strongly lustrous; head with a dark reddish transverse marking on each side of the posterior end of frons, seven terminal segments of antennae simply black, mouth-parts (excepted the basal area of labrum) and tarsi piceous to black, medio-anterior area of pronotum generally bronzy black.

Head: post-ocular constrictions not connected to each other acrossing the dorsal surface; frontal groove very deep, completely connected to the post-ocular groove, widely

rounded at the front angle; frons subtrigonate, somewhat wider than long, with front angle rounded, completely bipartite by a deep central longitudinal groove, not delimited from neck-region and commonly convex with the latter area, rather thickly pubescent-punctate and their interspaces very minutely punctulate; frontal tubercles subquadrate, distinctly convex, impunctate, glabrous; clypeus subtrigonate, with front margin distinctly emarginate, very minutely punctulate throughout, rather strongly depressed and rather thickly pubescent-punctate on each side; maxillary palpi slender, with last segment strongly elongate-conical and much longer than the penultimate segment. Eyes deeply and triangularly notched at each inner margin. Antennae filiform, slender, somewhat longer than half the length of body; 1st segment strongly thickened and subovate, 2nd shortest and nearly obconical, 3rd longer but very much slenderer than the 1st, 4th rather longer than the 3rd, the seven succeedings strongly elongate and moderately thickened, 5th longest, 6th to 11th subequal in length to one another and each one of them longer and much thicker than the 4th, with the apex of 11th pointed. Pronotum subquadrate, not longer than wide, strongly constricted on each side at only a little behind the middle; dorsum strongly transversely convex, thickly covered with two kinds (larger and finer) of punctures, with an ante-basal transverse impression which is terminating laterally into the posterior end of the lateral constriction. Scutellum small, short, gently rounded at the apex, longitudinally convex and very finely but sparsely pubescent-punctulate on the dorsum, with apical area somewhat bending downwardly in a very short distance. Elytra elongate, parallel-sided; dorsum convex, with a distinct transverse depression on each side of the suture at a little behind the base, regularly punctate in ten longitudinal rows on each elytron, with a short scutellar row of similar large punctures, interstices of these regular rows of large punctures very finely but not thickly punctulate together with the humeri. Claws broad, flat, infero-obliquely truncate at the apex.

**Length:** 4.25 – 5.0 mm.

**Food-plant:** *Persicaria chinensis* Nakai (Japanese name: *Taiwan-turusoba*).

**Loc. Distr.** - Mt. Ari-san (altitude about 2000 metres), Tainan-Syû (1 Ex., 23.X.1933, M. Chûjô leg.).

Taitô, Musha, Kuraru, Sôzan and Urai (after M. Chûjô, 1933).

**Gen. Distr** - Formosa.

### 14. Lema (Sulcatolema) formosana Kuwayama

*Lema formosana* Kuwayama, Journ. Fac. Agr., Hokkaidô Imp. Univ., XXXIII, 1, pp. 75-76 & 82, Text.-fig. II (1932) (Formosa: Taichû). - Chûjô, Sylvia, IV, 1, pp. 21, 32 & 60 (1933) (Formosa: Nankô-Kyûshô, Hokuzankô, Taihoku, Shôka & Heitô); Arb. Morph. Taxon. Ent. Berlin- Dahlem, I, 4, pp. 281-285 (1934) (Formosa: Tainan & Kankau).

Body elongate, nearly quadrate-oblong. Head dark metallic blue; mouth-parts black, with palpi piceous; antennae black, of the 1st segment with a slight metallic blue shimmer; neck-region and prothorax reddish brown, lustrous; scutellum reddish brown, generally darker than pronotum, frequently strongly infuscated at the apical and lateral areae; elytra deep metallic blue or greenish blue, with apical area and posterior portions of the latero-marginal areae yellowish brown to reddish brown; meso- and metapleura

metallic blue-black; mesosternum reddish brown on the middle and blue-black on each side; metasternum dark metallic blue, with front margin and medio-anterior area reddish brown; abdomen reddish brown; legs: coxae and trochanters generally black, but fore-coxae partly or mostly stained with reddish brown in some cases, femora reddish brown in general, but the basal small area and apical one-third area tinged with black, tibiae and tarsi blackish brown to piceous or black.

Head: post-ocular constrictions not affecting to the dorsal surface; neck-region cylindrical, extremely finely shagreened, minutely punctulate, with a large puncture on the middle; frontal groove deep, assuming a /\- shape, completely connecting to the post-ocular groove at the posterior end; frons distinctly convex, rather prominent on each side near the base, finely punctulate, finely but not thickly pubescent on each side and also on the anterior area, with a longitudinal groove which is not extending to the anterior end on the middle; frontal tubercles subquadrate, rather sparsely pubescent-punctate; clypeus nearly obpentagonal, with front margin nearly straight, gently convex on the dorsum, extremely finely shagreened, rather finely pubescent-punctate with the exception of the anterior area. Mouth-parts: labrum with front margin deeply emarginate at the middle, the other structures as in the generic description; maxillary palpi slender, with last segment strongly elongate-conical, bluntly pointed at the apex and not thicker than the penultimate segment. Eyes large, with inner margin strongly and triangularly notched. Antennae filiform, rather longer than half the length of body; 1st segment very strongly thickened and longer than wide, 2nd shortest and distinctly longer than wide, 3rd nearly equal in length to, but much slenderer than, the 1st, 4th rather longer than, but nearly equal in thickness to, the 3rd, each one of the seven followings much longer and thicker than the 4th, 5th longest, 6th to 10th subequal to one another, 11th slightly shorter than the 5th and pointed at the apex. Pronotum subquadrate, widest at a little behind the front margin, strongly constricted on each side at, or just behind, the middle; dorsum strongly transversely convex, thickly covered with very fine punctures, sparsely covered with larger punctures on each latero-anterior area and also on the median area, with a transverse impression, which is terminating laterally into the posterior portion of lateral constriction, between the middle and base, and front margin slightly emarginate at the middle. Scutellum small, with apical margin slightly rounded, but in one glance it may be seen as a straight line, because the apical area strongly bending downwardly, slightly convex and very finely pubescent-punctulate on the dorsum. Elytra elongate, slighly narrowed posteriorly; dorsum convex, with a distinct transverse depression on each side of the suture below the base, regularly and rather deeply punctate in ten longitudinal rows on each elytron, with another short scutellar row of similar large punctures, interstices of these regular rows of large punctures mostly impunctate with the exception of a longitudinal row of sparsely settled fine punctures between the 1st and 2nd rows of large punctures. Claws rather slender, gently obliquely truncated at the apex.

♂: Middle-tibiae armed with a large tooth ro triangular denticulation on the middle of lower side.

♀ : Middle-tibiae armed with an obtuse tooth or subtriangular denticulation on the lower side just beyond the middle.

**Length**: ♂, 5.0 – 5.5 mm.; ♀, 5.5 – 6.0 mm.

**Loc. Distr.** - Taihoku-Si, Taihoku-Syû (1 Ex., 17.VI.1932; 1 Ex., 10.VI. 1936; 2 Exs., 20.VII. 1937; 2 Exs., 2.VI.1938; 1 Ex., 20.VIII.1938; 1 Ex., 17.X.1939; 1 Ex., 10.V.1941; M. Chûjô leg.).

Taichû (after S. Kuwayama, 1932); Nankô-Kyûshô, Hokuzankô, Taihoku, Shôka and Heitô (after M. Chûjô, 1933); Tainan and Kankau (Kôshun) (after M. Chûjô, 1934).

**Gen. Distr.** - Formosa.

## 15. Lema (Sulcatolema) concinnipennis Baly

*Lema concinnipennis* Baly, Ann. Mag. Nat. Hist., (3), XVI, p. 157 (1865) (N. China); Trans. Ent. Soc. London, p. 70 (1873) (Japan: Nagasaki & Hiogo; the coast of Tartary; N. China). - Gemminger et Harold, Cat. Col., XI, p. 3252 (1874) (N. China). - Lewis, Cat. Col. Japanese Archipel., p. 27 (1879) (Japan). - Jacoby, Proc. Zool. Soc. London, p. 752 (1885) (Japan). - Schönfeldt, Cat. Col. Japan, p. 142 (1887) (Japan: Nagasaki & Hiogo). - Jacoby et Clavareau, in Wytsman, Gen. Ins., XXIII, p. 6 (1904) (N. China). - Clavareau, in Junk et Schenkling, Col. Cat., LI, p. 59 (1913) (N. China). - Weise, Philippine Journ. Sci., XXI, 5, pp. 423-426 (1922) (Philippines: Iligan in Mindanao). - Doi, Dôbutugaku-Zassi, XXXIX, 466, pp. 326 & 335 (1927) (Korea: Keizyô). - Winkler, Cat. Col. Reg. Palaearcticae, II, 10, p. 1232 (1929) (N. China). - Kuwayama, Journ. Fac. Agr., Hokkaidô Imp. Univ., XXXIX, 1, pp. 69 & 82 (1932) (Japan: Kyôto, Koyadaira, Mt. Kibune & Fukuoka; Korea: Keijô, Taiyudong & Tojinmen). - Chûjô, Sylvia, IV, 1, pp. 23, 41-42 & 60 (1933) (Japan: Nagasaki; Formosa: Taitô & Musha); Bull. Umeno Ent. Lab., 2, p. 13 (as *L. concinnicollis*) (1935) (Japan: Kurume), l. c., 3, p. 7 (1936) (Korea: Hokusammen). - Kusanagi, Kontyû-Kai, IV, 27, p. 310 (1936) (Japan: Kazigamori in Sikoku). - Chûjô, Mushi, XI, 2, p. 158 (1938) (N. China: Laoshan, near Tsingtao); Kontyû, XIV, 2, p. 67 (1940) (Japan: Kodakusa & Mikazuki, both in Kôti-Si, Sikoku); Trans. Nat. Hist. Soc. Formosa, XXX, 204, p. 352 (1940) (Korea: Teisiri, Keizyô & Mt. Naizô-zan). - Gressitt, Lingnan Sci. Journ., XX, 2-4, pp. 350 & 311 (1942) (China: Fukien).

*Lema haemorrhoidalis* Weise, Horae Soc. Ent. Rossicae, XXIII, pp. 562 & 576-577 (1889) (China: Szetschuan); Philippine Journ. Sci., XXI, 5, p. 423 (1922) (as a synonym of *L. concinnipennis* Baly). - Winkler, Cat. Col. Reg. Palaearcticae, II, 10, p. 1232 (1929) (W. China; as an independent species). - Chûjô, Mushi, XI, 2, p. 158 (1938) (as a synonym of *L. concinnipennis* Baly).

*Lema kiotoensis* Pic, Mélanges Exot.-Ent., XLI, p. 12 (1924) (Japan). - Winkler, Cat. Col. Reg. Palaearcticae, II, 10, p. 1232 (1929) (Japan). - Kuwayama, Journ. Fac. Agr., Hokkaidô Imp. Univ., XXXIX, 1, p. 69 (1932) (as a synonym of *L. concinnipennis* Baly).

Body medium in size, rather strongly elongate sudquadrate, parallel-sided. General colour deep metallic blue, strongly lustrous; antennae black, with 1st segment dark metallic blue, 2nd to 4th with a slight metallic blue sheen; mouth-parts piceous to black, partially dark yellowish brown, with basal area of labrum dark metallic blue or bronzy; underside shiny black, with a slight metallic blue shimmer on each side and three apical sternites of abdomen yellowish brown to reddish brown; legs black, more or less lustrous.

Head: post-ocular constrictions not connected to each other by the distinct transverse impression acrossing the dorsal surface, but distinctly limited from frons by the different convexities between these two areae; neck-region convex, strongly and rather

thickly punctate on the posterior area, very sparsely so on the anterior area, but the latter area very finely punctulate between the sparsely settled large punctures; frontal groove distinct, completely connected with the post-ocular groove at the posterior end; frons trigonate, distinctly convex, with a deep longitudinal groove on the middle from the base to near the middle, prominent forwardly in a short blunt-headed projection at the anterior end, extremely finely shagreened on the whole surface, very finely but not very thickly punctulate, strongly and rather sparsely pubescent-punctate; frontal tubercles subquadrate, somewhat convex, very finely punctulate and very sparsely pubescent on the posterior marginal area; clypeus nearly obpentagonal, with front margin very slightly emarginate or nearly straight, somewhat convex, strongly pubescent-punctate, the punctuation thicker on the lateral areae than on the middle, interspaces of these larger punctures very finely punctulate; maxillary palpi rather slender, with last segment strongly elongate-conical and much longer than the penultimate segment. Antennae filiform, somewhat longer than half the length of body; 1st segment strongly thickened and subquadrate-cylindrical, 2nd shortest and subcylindrical or nearly obconical, 3rd nearly equal in length to, but very much slenderer than, the 3rd, the seven followings strongly elongate and moderately thickened, 5th longest and the followings gradually diminishing their length terminally, but 11th nearly equilength to the 6th and bluntly pointed at the apex. Pronotum subquadrate, not longer than wide, widest at a little behind the front margin, strongly constricted on each side just behind the middle; dorsum strongly transversely convex, very finely punctulate throughout, strongly and rather thickly punctate on the middle and latero-anterior area, with a distinct ante-basal transverse impression which terminates laterally into the posterior end of the lateral constriction and bearing a large puncture in the middle. Scutellum small, distinctly narrowed posteriorly, gently rounded at the apex, longitudinally convex and finely pubesent on the dorsum. Elytra strongly elongate, parallel-sided; dorsum convex, with a distinct transverse depression on each side of the suture at a little behind the base, strongly and regularly punctate in ten longitudinal rows on each elytron, with a short scutellar row of the similar large punctures, interstices of these regular rows of large punctures very minutely but not very thickly puunctulate together with the humeri. Claws rather broad, truncated obliquo-inwardly at the apex.

**Length:** 5.0-6.5 mm.

**Food-plant:** *Commelina commnis* L. (Japanese name: *Tuyukusa*).

**Loc. Distr.** - Tipon, Taitô-Gun, Taitô-Tyô (1 Ex., 13. VI. 1940, M. Chûjô leg.). Taitô and Musha (after M. Chûjô, 1933).

**Gen. Distr.** - China, Turkestan, Korea, Japan proper (Honsyû, Sikoku & Kyûsyû), Formosa and Philippines.

## 16. Lema (Sulcatolema) takara Chûjô

*Lema takara* Chûjô, Sylvia, IV, 1, pp. 20, 23-24 & 62 (1933) (Formosa: Rikiriki & Kuraru); Arb. Morph. Taxon. Ent. Berlin-Dahlem, I, 4, p. 281 (1934) (Formosa: Kankau).

Body medium in size, elongate-subquadrate, parallel-sided. Head and prothorax

brownish red, lustrous, with clypeus, labrum and submentum cupreous blue-black, four basal segments of antennae blue-black and the seven followings simply black, and prosternal process and apices of pro-epimera piceous to black; scutellum pitchy red to black, with a slight metallic sheen; elytra deep metallic blue or greenish blue, frequently with a slight golden or cupreous shimmer; underside (excepted of the head and prothorax) and legs metallic blue-black, with a slight cupreous shimmer in many cases, but in some cases mesosternum and median areae of metasternum and 1st abdominal sternite dark reddish or pitchy red.

Head: post-ocular constrictions connected to each other by a very weak transverse impression acrossing the dorsal surface; neck-region distinctly convex, impunctate on the anterior area, distinctly punctate on the basal area; frontal groove very deep, completely connected at the posterior end to the post-ocular groove; frons trigonate, strongly convex, prominent forwardly at the anterior end, confusedly punctured, the punctures variable in their shape and size, besides these some larger pubescent-punctures on the lateral areae, with a short longitudinal groove on the middle; frontal tubercles subtrigonate, convex, very finely but not thickly pubescent, sparsely pubescent-punctulate on the posterior area; clypeus nearly obpentagonal, with front margin slightly emarginate and very narrowly bordered, gently convex on the dorsum, rather thickly pubescent-punctate with the exception of the anterior marginal area, interstices of these punctures very finely but not very thickly punctulate; maxillary palpi slender, with last segment strongly elongate-conical and distinctly longer than the penultimate segment. Antennae filiform, rather longer than half the length of body; 1st segment strongly thickened and nearly obovate, 2nd shortest, subcylindrical and longer than wide, 3rd nearly equal in length to, but very much slenderer than, the 1st, 4th nearly equal in shape and size to the 3rd, 5th to 11th strongly thickened and elongate, 5th longest, 6th and 7th nearly equal in length to each other, 8th to 11th also nearly equal in length to one another and each one of them longer than the 7th, with apex of the 11th pointed. Pronotum subquadrate, rather wider than long, widest at a little behind the front margin, strongly constricted on each side at middle; dorsum strongly transversely convex, very finely punctulate throughout, very sparsely and strongly punctate on the anterior and median areae, with the ante-basal and ante-median transverse impressions which are terminate laterally into the lateral constriction, the ante-basal one bearing a fovea or large puncture in the middle and the ante-median one sometimes interrupted at the middle. Scutellum small, gently narrowed posteriorly, round at the posterior corner, slightly emarginate-depressed at the apex, longitudinally convex and finely but not very thickly pubescent-punctulate on the dorsum. Elytra elongate, parallel-sided; dorsum convex, with a faint depression below the base, strongly and regularly punctate in ten longitudinal rows on each elytron, with a short scutellar row of the

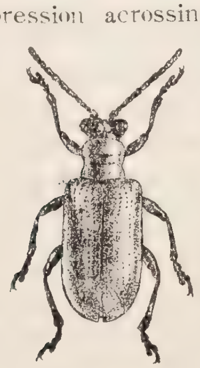

Fig. 21. *Lema* (*Sulcatolema*) *takara* Chûjô

similar large punctures, interstices of these regular rows of large punctures very finely but not thickly punctulate. Claws rather slender, very slightly and gently truncated obliquo-inwardly at the apex.

**Length**: 5.5 - 6.0 mm.

**Loc. Distr.** - Rikiriki and Kuraru (after M. Chûjô, 1933); Kankau (Kôshun) (after M. Chûjô, 1934).

**Gen. Distr.** - Formosa.

## 17. Lema (Sulcatolema) nitobei Chûjô

*Lema nitobei* Chûjô, Sylvia, IV, 1, pp. 21, 28-29, 60 & 63 (1933) (Formosa: Taitô, Musha, Kwanshirei, Taihoku & Urai); Arb. Morph. Taxon. Ent. Berlin-Dahlem, I, 4, p. 282 (1934) (Formora: Fuhôshô, Taihorin Tainan, Kankau & Chôsôkei).

Body small, elongate-oblong. General colour light to dark or deep yellowish brown, lustrous; antennae black, with the exception of 1st segment and undersides of 2nd, 10th and 11th segments; apices of tibiae, apices of 1st and 2nd tarsal segments, dorsal surface of 3rd tarsal segment, apex of claw-segment and claws more or less infuscated.

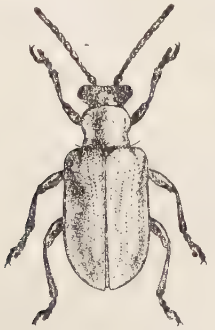

Fig. 22. *Lema (Sulcatolema) nitobei* Chûjô

Head: post-ocular constrictions distinctly connected to each other by a transverse impserrion acrossing the dorsal surface; neck-region convex, extremely finely punctulate throughout, strongly and rather sparsely punctate on the posterior area; frontal groove distinct, reaching to the post-ocular groove at the posterior end; frons trigonate, rather prominent in a blunt-headed projection at the anterior end, strongly convex on the dorsum, extremely finely punctulate throughout, with a large puncture or fovea on the middle, sparsely pubercent-punctate on each latero-anterior area; frontal tubercles subquadrate, somewhat convex, extremely finely punctulate throughout, pubescent-punctate on the posterior area; clypeus nearly obpentagonal, with front margin slightly emarginate, convex on the dorsum, with posterior area rather longitudinally costate between the frontal tubercles, extremely finely punctulate throughout, pubescent-punctate on the lateral areae; maxillary palpi slender, with last segment elongate-conical and longer than the penultimate segment. Antennae filiform, slender, much longer than half, but rather shorter than whole, the length of body; 1st segment strongly thickened, ovate, but compressed from the outer side, 2nd very much shorter than any one of the others and subcylindrical, 3rd nearly equal in length to, but very much slenderer than, the 1st, 4th rather longer than the 3rd, the seven followings strongly elongate, moderately thickened and each one of them much longer and thicker than the 4th, 5th longest, 6th and 7th nearly equal in length to each other, 8th to 11th subequal in length to one another and each one of them rather shorter than the 6th or 7th, with apex of 11th bluntly pointed. Pronotum subquadrate, rather wider than long, strongly constricted on each side at middle; dorsum strongly transversely convex, very finely punctulate throughout, with some large punctures on the latero-anterior areae confusedly and also on the

middle in two irregular longitudinal rows, usually with an ante-basal transverse impression which terminates laterally into the posterior end of the lateral constriction and bearing a large puncture in the centre and some smaller punctures near the large puncture, sometimes with a very faint ante-median transverse impression which is terminating laterally into the anterior end of the lateral constriction and always interrupted at the middle. Scutellum small, gently narrowed posteriorly, rounded at the apex, longitudinally convex on the dorsum with apical area bending downwardly in a short distance, very finely but not very thickly pubescent-punctulate. Elytra elngate, gently narrowed posteriorly; dorsum convex, with a distinct transverse depression on each side of the suture at a little behind the base, strongly and regularly punctate in ten longitudinal rows on each elytron, with a short scutellar row of the similar large punctures, interstices of these regular rows of large punctures nearly impunctate. Claws broad, truncated obliquo-inwardly at the apex.

**Length:** 5.0 - 6.0 mm.

**Loc. Distr** - Taihoku-Si, Taihoku-Syû (1 Ex., 20. IV. 1932; 1 Ex., 10. VI. 1932; 3 Exs., 25.IV.1934; M. Chûjô leg.); Urai, Bunzan-Gun, Taihoku-Syû (1 Ex., 18.IX.1932; 1 Ex., 2.IX.1936; M. Chûjô leg.); Kuaru, Kôsyun-Gun, Takao-Syû (1 Ex., 12.VI.1937, M. Chûjô leg.); Mt. Sô-zan, Sitisei-Gun, Taihoku-Syû (1 Ex., 23. IV.1938, M. Chûjô leg.).

Taitô, Musha, Kwanshirei, Taihoku and Urai (after M. Chûjô, 1933); Fuhôshô, Taihorin, Tainan, Kankau, Kôshun and Chôsôkei (after M. Chûjô, 1934).

**Gen. Distr.** - Formosa.

### 18. Lema (Sulcatolema) esakii CHÛJÔ, sp. nov.

Body small, elongate-subquadrate, parallel-sided. General colour yellowish brown, lustrous; anterior marginal area of clypeus, labrum and extero-basal areae of mandibles pitchy black; apices of mandibles, three terminal segments of maxillary palpi and last segment of labial palpi dark brown; antennae blackish browu to black, with 1st segment entirely yellowish brown and undersides of 2nd to 7th segments rather dark yellowish brown; each elytron decorated with two black markings, the one of them being situated at a little behind the base and the other one just behind the middle; tarsi, claws and undersides of tibiae blackish brown.

Head strongly constricted on each side at a little behind the eyes, the constrictions not distinctly grooved in the bottom, but connected to each other by a transverse impression acrossing the dorsal surface; neck-region nearly cylindrical with a gentle convexity, extremely finely but not very thickly punctulate; frontal groove deep, hardly extending to the post-ocular constriction at the posterior end; frons trigonate, distinctly convex, markedly limited from the neck-region, somewhat tuberculated forwardly at the anterior end, rather thickly pubescent-punctate and the size of the punctures uneven, with a deep and short longitudinal groove, which is reaching to the anterior end of the neck-region, on the middle of basal area; orbital area rather thickly pubescent-punctate;

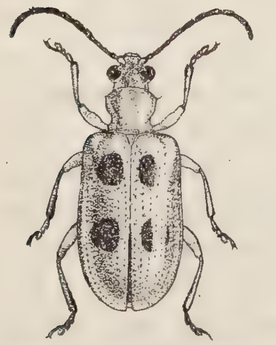

Fig. 23. *Lema* (*Sulcatolema*) *esakii* Chûjô, sp. nov.

frontal tubercles subquadrate, distinctly delimited from the surrounding areae, contiguous to each other, but separately convex, impunctate and glabrous, with the exception of a few fine pubescent-punctures on the posterior marginal area; clypeus nearly obpentagonal, with front margin straight, moderately convex and pubescent-punctate on the dorsum, the punctures thicker on the basal area than on the anterior area with the anterior marginal area impunctate, interspaces of these punctures very finely punctulate throughout; labrum transverse, narrowed anteriorly, rounded and very finely pubescent at the front corners, emarginate at the front margin, rather convex and extremely finely but not thickly punctulate on the dorsum, with a transverse row of some large pubescent-punctures nearly along the basal margin; maxillary palpi slender, with last segment nearly conical and much longer than the penultimate segment. Eyes deeply notched at the inner margin. Antennae filiform, somewhat longer than half the length of body; 1st segment strongly thickened and subovate, 2nd shortest, widened terminally and much longer than wide, 3rd nearly equal in length to, but very much slenderer than, the 1st, 4th longer than the 3rd, the seven succeedings stongly elongate, distinctly thickened, each one of them much longer and thicker than the 4th and the order of their length as follows: 5th$>$7th$>$11th (with apex pointed)$>$6th$>$8th$>$9th$>$10th. Pronotum subquadrate, not longer than wide, strongly constricted on each side at just behind the middle; dorsum strongly transversely convex, extremely finely punctulate throughout, rather strongly and sparsely punctate on the latero-anterior areae, rather strongly punctate on the middle in two longitudinal parallel-rows, with a distinct ante-basal transverse impression which terminates laterally into the posterior end of the lateral constriction and bearing a large puncture in the centre. Scutellum small, gently narrowed posteriorly, rounded at the apical corners, slightly emarginate at the apex, longitudinally convex and extremely finely but not thickly pubescent-punctulate. Elytra elongate, much wider at the base than pronotum, parallel-sided, rounded at the apex; dorsum convex, with a distinct transverse depression on each side of the suture at a little behind the base, strongly and regularly punctate in ten longitudinal rows, with a short scutellar row of the similar large punctures, interstices of these regular rows of large punctures finely but not thickly punctulate; humeri raised, free from the striated punctures. Underside and legs finely pubescent-punctulate; claws rather broad, strongly obliquo-inwardly truncated at the apex.

**Length:** 5.9 mm.

**Loc. Distr.** - Tattaka-Baikei, Nôkô-Gun, Taityû-Syû (1 Ex., **Holotype**, 20.VIII.1921, T. Esaki leg.).

**Gen. Distr.** - Formosa.

The specific name is dedicated to Prof. Dr. T. Esaki of Kyûsyû Imperial University in Hukuoka, Kyûsyû, Japan.

## Subgenus Lema s. str.

*Hapsidolema* Heinze, Ent. Blätt., XXIII, 4, pp. 162-163 (1927).

*Incisophthalma* Heinze, Deutsche Ent. Zeitschr., 4, p. 289 (1929).

**Subgenotype:** Same with the Genotype.

**Range:** Old World (The fauna of the New World is not yet studied).

**General characters:** Body small, narrowly elongate, parallel- or subparallel-sided. Head shortened, very deeply and widely grooved on each side at just or slightly behind the eyes, the groove developing obliquo-forwardly and connected to each other at the middle of inter-ocular space forming an obtuse angle (this is so-called the "frontal groove"); neck-region subglobularly convex; frons very short, with anterior angle larger than 90°, commonly convex and not limited with the neck-region at all; orbital areae narrowly limited by a narrow sulcus running from the posterior end of the inner margin of eye to obliquo-inwardly; frontal tubercles subtrigonate or nearly so, distinctly limited from the surrounding areae, with the posterior half raised and the anterior half strongly depressed; clypeus subtrigonate, rather wider than long, with all the margins more or less incurved and dorsum medially convex. Mouth-parts: maxillary palpi slender, with 1st segment very short, 2nd and 3rd subequal to one another and each one of them strongly thickened terminally, 4th elongate-conical and very much longer than each one of the two precedings; mentum transverse, with front margin deeply emarginate; ligula subquadrate, with front angles rounded and front margin gently emarginate at the middle; labial palpi slender, with 1st segment miunte, 2nd strongly thickened terminally, 3rd oblong or oblong-oval and more or less longer than the 2nd. Eyes ovate or oblong-ovate or rounded, with inner margin entire or slightly to rather distinctly emarginate, convex and finely facetted. Antennae filiform, about half, or rather more than half, as long as the body in length, with two basal segments sparsely pubescent and the nine followings very thickly pubescent; 1st segment strongly obconically or subglobularly thickened, 2nd shortest, 3rd and 4th somewhat thickened terminally, the seven succeedings strongly thickened and each one of them much longer and thicker than any one of the four basal segments, with apex of the 11th more or less pointed. Pronotum generally more or less subglobularly convex, but sometimes subcylindrical, wider at a little behind the front margin than the base, narrowed posteriorly with a gentle curvature, distinctly constricted on each side just or a little before the base and the constrictions connected to each other by a distinct transverse impression (this is so-called the "ante-basal transverse impression") nearly along the basal margin; dorsum more or less strongly convex, thickly covered with very fine punctures on the whole surface and moreover sparsely covered with very large and deep punctures on the latero-anterior and median areae, in the latter area the large punctures frequently arranging in one or two longitudinal rows. Scutellum small, gently narrowed posteriorly, with apex straightly truncated or more or less emarginated. Elytra strongly elongate, much wider at the base than pronotum, parallel-sided or slightly narrowed posteriorly, rounded at the apex; dorsum convex, with medio-basal area flat or slightly depressed, strongly and regularly punctate in ten longitudinal rows on each elytron, with a short scutellar row of the similar large punctures, interstices of these regular rows of large punctures generally flat on the inner disc but rather convex on each side.

**Remarks:** E. Heinze (1927) selected the following 11 species from the Genus *Lema* Fabricius and lumped them under a new genus *Hapsidolema: Lema lichens* Voet from Europe, *L. erichsoni* Suffrian from Europe, *L. tristis* Herbst from Europe, *L. melanophthalma* Lacordaire from Africa, *L. melanopa* Linné from Europe, *L. erythrodera* Lacordaire from Africa, *L. hoffmannseggi* Lacordaire from Europe, *L. dunbrodiensis* Jacoby from Africa, *L. raffrayi* Chapuis from Africa, *L. gramines* Jacoby from Africa and *L. bomaensis* Jacoby from Africa. And I approve of his separation as a subgenus after the close examination, but his new name must fall as a synonym of the Subgenus *Lema* s. str., because his *Hapsidolema* is including *Lema lichens* Voet as a member of it. This species is a synonym of *Lema cyanella* Linné, which is the Genotype of *Lema* Fabricius fixed by M. Jacoby in 1908 (Fauna Brit. India, incl. Ceylon and Burma: Col. II, Chrysom. 1, p.15).

After that E. Heinze (1929) separated his *Hapsidolema* in two subgenera by the character of eyes as follows:

I. Augen neben den Fühlern mit einem deutlichen Einschnitt ........................................ *Incisophthalma* nov.

II. Augen neben den Fühlern nicht ausgeschnitten ............... *Hapsidolema* s. str.

But these separation, by my experiences, may be seen as an indistinct one, because we may frequently be met with the species which having the inner margin of eyes not entire but not distinctly emarginate.

### Key to the Species

1\. Apex of each elytron emarginate and posterior end of sutural margin denticulate, pronotum much longer than wide, scutellum distinctly notched at the apex; general colour yellow-brown, with a slight cupreous shimmer, sutural and lateral margins of elytra, together with some portions of underside and legs, somewhat infuscated ........................ *gracilenta* sp. nov.

1'. Apex of each elytron not emarginate and posterior end of sutural margin not denticulate, pronotum not much longer than wide, scutellum straightly truncated at the apex ........................ (2)

2\. Head, scutellum and underside black, pronotum and legs (femora epcepted) yellowish brown or reddish brown, elytra metallic deep blue or cyaneous ........................ *oryzae* Kuwayama

2'. Dorsum of body yellowish brown in general colour, with scutellum and sutural area of elytra blackish ........................ (3)

3\. Elytra with sutural area narrowly blackish and in some cases the lateral margins very narrowly infuscated, underside and legs yellowish brown, with apices of tibiae and tarsi somewhat infuscated in many cases ........................ *downesii* Baly

3'. Elytra with sutural and lateral areae widely stained with black, underside and legs piceous to pitchy black, with last abdominal sternite rather dark yellowisd brown ........ *downesii* var. *melania* nov.

## 19. Lema (s. str.) gracilenta CHÛJÔ, sp. nov.

Body small, very narrowly elongate, nearly parallel-sided. General colour yellow-brown, with a slight cupreous sheen; mouth-parts and terminal segments of antennae more or less infuscated; elytra paler than the others, with sutural and lateral margins pale bronzy; underside (especially the metasternum) and median area of femora more or less stained with bronzy.

Head strongly constricted and deeply grooved on each side at just behind the eyes,

the grooves not connected to each other acrossing the dorsal surface; neck-region nearly subglobularly convex, confusedly covered with two kinds (large and fine) of punctures, glabrous, with a large longitudinal fovea on the middle of anterior area; frontal groove deep, obtusely angulated at the anterior end, connected at the posterior end to the post-ocular groove; frons trigonate, very much wider than long, commonly convex with the neck-region and not limited from the latter area, strongly and rather thickly pubescent-punctate on the whole surface, with an obtuse central ridge which is assuming a distinct blunt-headed projection at the anterior end; frontal tubercles subtrigonate, distinctly limited from the anterior and posterior areae, contiguous to each other at their posterior end or widely separated by the posterior area of clypeus between them, not very convex on the dorsum, nearly impunctate and glabrous; clypeus nearly obtrigonate, with front margin very slightly emarginate, dorsum somewhat convex and rather thickly pubescent-punctate, but the anterior area not raised and glabrous in a short distance; labrum with front margin deeply notched at the middle, the other structures as in the generic and subgeneric descriptions; maxillary palpi very slender, with 2nd and 3rd segments nearly equal in length to each other and each one of them not longer than wide, last segment strongly elongate-conical with blunt head and much longer than the preceding one. Eyes very slightly emarginate at the middle of inner margin. Antennae filiform, about half as long as the body, with each segment more or less longer than wide; 1st segment strongly thickened and subquadrate-cylindrical, 2nd shortest, most slender and gently thickened terminally, 3rd somewhat thickened terminally and nearly equal in length to, but very much slenderer than, the 1st, 4th rather longer and slightly thicker than the 3rd, 5th longest, distinctly thickened terminally and somewhat thicker at the apex than of the 4th, 6th to 10th strongly thickened, nearly or completely cylindrical and gradually and slightly diminishing their length terminally, 10th rather shorter but very much thicker than the 4th, 11th rather shorter than the 5th but longer than the 6th and nearly equal in thickness to the 10th, with bluntly pointed apex. Pronotum subcylindrical, distinctly longer than wide, widest at a little behind the front margin, rather gently constricted on each side at a little before the base and the constrictions connected to each other by a shallow ante-basal transverse impression, the impression thickly punctulate with a large longitudinal fovea in the middle; dorsum very minutely punctulate throughout, very strongly and rather thickly punctate on the latero-anterior and medio-anterior areae, some of the strong punctures arranging in two longitudinal parallel rows from a little behind the front margin to near the ante-basal transverse impression, and also very thickly punctulate on each side of the post-median area. Scutellum small, somewhat longer than wide, rather distinctly narrowed posteriorly, more or less emarginate at the apex, longitudinally convex and very finely but not thickly pubescent-punctulate on the dorsum. Elytra

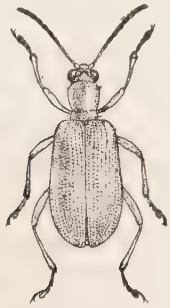

Fig. 24. *Lema* (s. str.) *gracienta* Chûjô sp. nov.

strongly elongate, distinctly wider at the base than pronotum, nearly parallel-sided, rounded at the apex, the latter somewhat emarginate and rather obtusely denticulate at the inner end (= apical end of the sutural margin); dorsum convex, with sutural area nearly flat, strongly and regularly punctate in ten longitudinal rows on each elytron, with a short scutellar row of the similar large punctures, interstices of these regular rows of large punctures partially very finely but sparsely punctulate; humeri somewhat raised, nearly impunctate. Underside: pro- and mesothorax and metapleura thickly and rugosely punctate, finely pubescent; metasternum very minutely punctulate throughout, very strongly and rather thickly pubescent-punctate on the lateral and anterior areae; abdomen rather strongly and thickly pubescent-punctate, the punctures becoming feebler and sparser medially; claws very broad, obliquo-inwardly truncated at the apex.

**Length:** 4.0 - 4.3 mm.

**Loc. Distr.** - Karenkô, Karenkô-Tyô (1 Ex., **Cotype**, 29.VII-4.VIII. 1919, T. Okuni leg.); Kuaru, Kôsyun-Gun, Takao-Syû (1 Ex., **Cotype**, 12.VI.1937, M. Chûjô leg.).

**Gen. Distr.** - Formosa.

This species is very peculiar in the elytral structure, especially of the apex of each elytron.

## 20. Lema (s. str.) oryzae KUWAYAMA

*Lema oryzae* Kuwayama, Kontyû, III, 3, p. 193 (1929) (nom. nud.); Ins. Mats., V, 3, p. 155 (1931) (Japan). - Miwa, Trans. Nat. Hist. Soc. Formosa, XXI, 114, p. 186 (1931) (Formosa); Syst. Cat. Formosan Col., p. 184 (1931) (Formosa: Taihoku). - Kuwayama, Journ. Fac. Agr., Hokkaidô Imp. Univ., XXXIII, 1, pp. 13-28, 65-67, 72-73, 82 & 83-91, pls. i-iii (1932) (Japan: many localities; Korea; Formosa: Taihoku); Rep. 29, Hokkaidô Agr. Exp. Stat., pp. 14-32, pls. i, ii & iv (1932) (Japan). - Chûjô, Sylvia, IV, 1, pp. 22, 34-35, 60 & 61-62 (1933) (Japan, Korea, Manchuria & Formosa); Arb. Morph. Taxon. Ent. Berlin-Dahlem, I, 4, p. 281 (1934) (Formosa: Chôsôkei). - Yuasa, Kontyû, IX, 1, p. 51 (1935) (Manchuria). - Kuwayama, Kontyû, IX, 6, p. 293 (1935) (Manchuria); Nôgyô-oyobi-Engei, XI, 6, p. 1481, 1 pl. (1936) (Japan, Korea, Formosa & Manchuria). - Yamamoto, Kagaku-no-Nôgyô, XVII, 4, p. 122 (1937) (Japan: Sado-ga-Sima). - Chûjô, Trans. Nat. Hist. Soc. Formosa, XXVII, 171, p. 271 (1937) (Japan: Sado-ga-Sima). - Fukuda, Kontyû-Kai, VI, 57, pp. 831-832 (1938) (Japan: Hatinohe-Si). - Gressitt, Lingnan Sci. Journ., XX, 2-4, pp. 306 & 317 (1942) (S. China).

*Lema melanopa* (nec Linné, 1758) Jacoby, Proc. Zool. Soc. London, p. 351, nota (1888) (Japan). - Lewis, Entomolog., XXVI, 360, p. 153 (1893) (Japan). - Sonan, Taiwan-Nôzihô, 236, p. 578 (1926) (Formosa). - Yuasa, Kontyû, I, 2, pp. 95-97 (1926) (Japan); l. c., III, 3, pp. 199-200 (1929) (Japan). - Baba, Sizen-Kenkyû, 5, p. 74 (1936) (Japan: Sado-ga-Sima).

*Lema tristis* (nec Herbst, 1786) and

*Lema flavipes* or *flaviceps* (nec Suffrian, 1841), by many Japanese entomologists, until 1929, as a pest of the rice-plant in Japan.

**Ecology, Economics, etc.:**

*Lema flavipes* (nec Suffrian, 1841) Shiraki, Special Rep. 1, Agr. Exp. Stat., Gov. Taiwan, pp. 206-208, pl. xxi (1910) (Formosa); Cat. Ins. Nox. Formosarum, p. 56 (1911) (Formosa); Special Rep. 8, Agr. Exp. Stat., Gov. Taiwan, pp. 597-598 (1913) (Formosa).

*Lema melanopa* (nec Linné, 1758) Sonan, Taiwan-Nôzihô, 236, pp. 578-579 (1926) (Formosa); Trans. Nat Hist. Soc. Formosa, XIX, 100, pp. 64, 66 & 73 (1929) (Formosa); Rep. 556. Bur. Plant Industr., Gov. Taiwan, pp. 42-45 (1930) (Formosa).

*Lema oryzae* Kuwayama, Journ. Fac. Agr., Hokkaidô Imp. Univ., XXXIII, 1, pp. 1-12, 28-65 & 91-123, pls. ii-iv (1932) (Japan, Korea & Formosa); Rep. 29, Hokkaidô Agr. Exp. Stat., pp. 1-14, 32-71 & 73-96, pls, i & iii- iv (1932) (Japan, Korea & Formosa); Byôtyûgai-Zassi, XXI, 1-2, pp. 13-17 & 99-102 (1934) (Japan); l. c., XXII, 1, pp. 21-26 (1935) (Japan); Rep. 33, Hokkaidô Agr. Exp. Stat. pp. 1-80 & (1)-(4), pls. i-iv (1935) (Japan); Hokunô, II, 5, pp. 136-139 (1935) (Japan); Kontyû, IX, 6, pp. 293-294 (1935) (Manchuria); Byôtyûgai-Zassi, XXIII, 1, pp. 14-20 (1936) (Japan). - Kuwayama et Ozaki, Rep. 37, Hokkaidô Agr. Exp. Stat., pp. 1-42, pls. i-vi (1936) (Japan). - Kuwayama, Rep. 37, Hokkaidô Agr. Exp. Stat., pp. 43-123 (1936) (Japan); Nôgyôkyôiku-Zihô, VI, 2, pp. 11-15 (1936) (Japan); Nôgyô-oyobi-Engei, XI, 6, pp. 1481-1484, 1 pl. (1936) (Japan, Korea, Formosa & Manchuria); Syokubutu-oyobi-Dôbutu, V, 1, pp. 65-68 (1937) (Japan); Rep. 38, Hokkaidô Agr. Exp. Stat., pp. 1-87, pls. i-ii (1937) (Japan); Mansyû-Nôgakukaihô, 5, pp. 1-6 (1938) (Manchuria); Rep. 33, Sect. Agr., Dept. Indust., Manchoukuo, pp. 19 & 22, pl. iii (1938) (Manchuria). - Miwa, in Rep. 666, Bur. Plant. Industr., Gov. Taiwan, pp. 112-114, pl. v, ff. 8-15 (1934) (Formosa); Extra Rep., Sect. Agr., Bur Plant Industr., Gov. Taiwan, pp. 8 & 18-21, pls.ii, ff. 1-6 (1940) (Formosa).

Body small, narrowly subquadrate, subparallel-sided. Head shiny black, with mouth-parts generally partially yellowish brown or reddish brown to piceous and posterior area from the frontal groove frequently slightly tinged with metallic blue; antennae black, with two basal segments yellowish brown or reddish brown, but in some cases these segments more or less stained with piceous or black on their dorsal surfaces; pronotum yellowish brown or reddish brown, with anterior area very narrowly to rather broadly tinged with piceous to black and posterior marginal area also staind with dark brown or blackish brown; scutellum shiny black; elytra uniformly shiny metallic deep blue or cyaneous. Uuderside: gula rather deep or dark reddish brown in general; prothorax with anterior and posterior marginal areae, prosternum and prosternal process black in general, but prosternum piceous or dark brownish in some cases; meso- and metasternum and abdomen uniformly black; legs yellowish brown, with coxae usually black, apices of tibiae and tarsi more or less infuscated.

Head strongly constricted and deeply grooved on each side at just or slightly behind the eyes, the grooves developing obliquo-anteriorly and meeting to each other at the middle of inter-ocular area forming an obtuse angle; neck-region subglobular, strongly and rather thickly punctate on the dorsum, the punctures larger on the medio-anterior area and somewhat elongate longitudinally on the medio-posterior area, interspaces of these large punctures extremely minutely punctulate, with a small, deep and longitudinally elongate fovea on the middle of anterior area; frons trigonate, very short, very much wider than long, not limited from the neck-region, somewhat convex, but rather flat or slightly depressed on the middle, finely but not thickly pubescent-punctulate on each side, with many very large and deep punctures, interspaces of these large punctures extremely finely but not very thickly punctulate; frontal tubercles subtrigonate or nearly so, distinctly delimited from the surrounding areae, separated to each other by a deep groove, impunctate and glabrous; clypeus subtrigonate, with front margin gently emarginate, somewhat convex and finely pubescent-punctulate on the surface; labrum as in the generic and subgeneric descriptions in the general structures, with front margin gently emarginate; maxillary palpi rather slender, with

last segment elongate-conical and distinctly longer than the penultimate segment. Eyes slightly or rather obtusely emarginate at the middle of inner margin. Antennae filiform, rather shorter than half the length of body, each segment more or less longer than wide in general, but the 2nd one frequently equal in its width and length; 1st segment strongly thickened, 2nd shortest and thinnest, 3rd gently thickened terminally and rather shorter and much thinner than the 1st, 4th nearly equal in shape to the preceding one but rather longer and thicker, 5th longest and distinctly thickened terminally, the five followings subequal to one another, each one of them rather shorter but thicker than the 5th and much longer and thicker than the 4th, 11th nearly equal in length to the 5th but much thicker and somewhat pointed at the apex. Pronotum subcylindrical, subquadrate, strongly constricted on each side behind the middle, widest at a little behind the front margin; dorsum transversely convex, strongly and irregularly punctate, interspaces of these large punctures partially very minutely punctulate, with a narrow central longitudinal fovea on a little before the base and the usual ante-basal transverse impression which is terminating laterally into the lateral constriction and including the most part of the former central fovea in it. Scutellum small, gently narrowed posteriorly, with apex straightly truncated in the dorsal view, impunctate and smooth on the dorsum. Elytra narrowly elongate-subquadrate, much wider at the base than pronotum, nearly parallel-sided, rounded at the apex; dorsum convex, with a light transverse depression on a little below the base and sutural area flat between the former transverse depression and apical area, strongly and regularly punctate in ten longitudinal rows on each elytron, with a short scutellar row of the similar large punctures, interstices of these regular rows of large punctures very finely but not thickly strigose and sparsely minutely punctulate partially. Claws very broad, obliquo-inwardly truncated at the apex.

**Length:** ♂ 3.9-4.6 mm., ♀ 4.4-5.3 mm.

**Food-plant:** *Oryza sativa* Linn. (Japanese name: *Ine*); *Glycer tiaonglensis* Charke (Jap. name: *Dozyôtunagi*); *Zizania latifolia* Turcz. (Jap. name: *Makomo*).

**Temporary food-plant:** *Gramineous grass* (Jap. name: Kahon-Ka no Zassô); *Phragmites communis* Trin. (Jap. name: *Kitayosi*); *Dactylis glomerata* Linn. (Jap. name: *Kamogaya*); *Phleum pratense* Linn. (Jap. name: *Ôawagaeri*); *Imperata cylindrica* Beauv. var. *Koenigii* Honda (Jap. name: *Tigaya*); *Leersia hexandra* Swartz (Jap. name: *Taiwan-Asikaki*), etc.

**Loc. Distr.** - Taihoku-Si, Taihoku-Syû (4 Exs., 8.IV.1932; 6 Exs., 11.VI. 1932; 1 Ex., 25. IV. 1934; 2Exs., 26.V.1938; 1 Ex., 2.VI. 1938; M. Chûjô leg.); Mt. Sô-zan, Sitisei-Gun, Taihoku-Syû (1 Ex., 25.IV.1934, M. Chûjô leg.).

Taihoku (after Y. Miwa. 1931; S. Kuwayama, 1932); Submountain districts in Taihoku-Syû, Sintiku-Syû, Taityû-Syû (Tôsei-Gun, Toyohara-Gun and Hokuzankô in Nôkô-Gun) and Karenkô-Tyô, and Kasyô-Tô (Is. Samosana) (after J. Sonan, 1929 & 1930).

**Gen. Distr.** - Japan proper (Hokkaidô, Honsyû, Ôsima, Sado-ga-Sima, Sikoku & Kyûsyû), Formosa, Korea, Manchuria and China.

**Remarks:** I examined four examples of this species from Foochow, eastern district of the Central China, collected by C. R. Kellog in 1936. *Lema melanopa* Linné from Fukien & Foochow in Catalogus Insectorum Sinensium, Vol. III, p. 785 (1937) will be

synonymous with the present species.

## 21. Lema (s. str.) downesii Baly

*Lema Downesii* Baly, Ann. Mag. Nat. Hist., (3), XVI, p. 156 (1865) (India: Bombay, Bengal); Trans. Ent. Soc. London, p. 75 (1873) (Japan: Nagasaki). - Lewis, Cat. Col. Japanese Archipel., p. 27 (1879) (Japan). - Schönfeldt, Cat. Col. Japan, p. 142 (1887) (Japan: Nagasaki).

*Lema Downesi* Gemminger et Harold, Cat.Col., XI, p. 3253 (1874) (India: Bombay).- Duvivier, Bull. ou Compt.-Rend. Séan. Soc. Ent. Belgique (Ann. Soc. Ent. Belgique), XXXV, p. xxxv (1891) (India: Konbir). - Jacoby et Clavareau, in Wytsman, Gen. Ins., XXIII, p. 7 (1904) (India: Bombay). - Clavareau, in Junk et Schenkling, Col. Cat., LI, p. 62 (1913) (India: Bombay).

*Lema downesi* Jacoby, Proc. Zool. Soc. London, p. 752 (1885) (Japan). - Kuwayama, Journ. Fac. Agr., Hokkaidô Imp.Univ., XXXIII, 1, pp. 79 & 82 (1932) (Japan: Nagasaki).

*Lema Downesi* Jacoby, Fauna Brit. India, incl. Ceylon and Burma: Col. II, Chrysom. 1, p. 43 (1908)(India: Bengal, Bombay & Malabar Coast). - Chûjô, Sylvia, IV, 1, pp. 21, 27-28 & 60 (1933) (Japan: Nagasaki); Trans. Nat. Hist. Soc. Formosa, XXV, 136-139, p. 71 (1935) (Loo-Choo: Naha in Okinawa-Hontô); l. c., XXV, 142, p. 209 (1935) (Loo-Choo: Okinawa-Hontô). - Gressitt, Lingnan Sci. Journ., XX, 2-4, pp. 306 & 313 (1942) (W. China).

*Lema nigrosuturalis* Clark, Cat. Phytoph. App., p. 37 (1865) (E. India).

Body small, nearly elongate-oblong. General colour yellowish brown, lustrous; mouth-parts, especially the labrum, more or less infuscated in general, but rarely entirely light yellowish brown with the exception of labium piceous; antennae with four basal segments yellowish brown with dorsum of each one more or less infuscated in many cases, but frequently the 1st one or 1st and 2nd ones nearly entirely yellowish brown, and the seven terminal segments piceous to black with ventral area of the base of 5th one more or less tinged with yellowish brown in general; scutellum generally piceous to black, but sometimes the median area or the entire surface yellowish brown; elytra with sutural area generally stained with piceous to black which is abbreviated before the apex and rarely also abbreviated before the base, external marginal area (invisible in dorsal view) of each elytron also very narrowly tinged with dark brown to piceous or black, but sometimes not infuscaetd; tarsi and apices of tibiae generally more or less infuscated, but rarely not so.

Head strongly constricted and deeply grooved on each side at just behind the eyes, the grooves running obliquo-anteriorly and meeting to each other at the middle of inter-ocular space forming an obtuse angle; neck-region subglobularly convex, extremely finely punctulate, with a distinct longitudinal fovea on the middle; frons trigonate, very strongly shortened, very much wider than long, not delimited from the neck-region, with lateral areae more or less distinctly depressed and strongly and thickly pubescent-punctate, median area obtusely costate longitudinally and the apical end somewhat produced anteriorly in a blunt-headed projection; frontal tubercles subtrigonate, distinctly limited from the anterior and posterior areae, widely separated to each other, depressed on the anterior area, impunctate and glabrous; clypeus subtrigonate, strongly depressed on each side, slightly emarginate or nearly straight at the front margin, rather sparsely or thickly pubescent-punctate on the surface, but

the anterior marginal area impunctate, glabrous and narrowly depressed; maxillary palpi slender, with last segment elongate-conical and much longer than the penultimate segment. Eyes sharply triangularly notched at the middle of inner margin. Antennae filiform, rather longer than half the length of body; 1st segment subglobularly thickened and rather longer than wide, 2nd shortest, subcylindrical and longer than wide, 3rd nearly equal in length to, but very much thinner than, the 1st, 4th rather longer than the 1st and slightly longer than, or nearly equi-length to, the 3rd, 5th longest and strongly thickened terminally, the six succeedings gradually thickened terminally, subequal in length to one another and each one of them much longer and thicker than the 4th, with the apex of 11th bluntly pointed. Pronotum subcylindrical, slightly longer than wide, strongly constricted on each side between the middle and base; dorsum very strongly transversely convex, very finely punctulate throughout, rather sparsely and confusedly furnished with very large and deep punctures on the latero-anterior areae, besides these with a pair of longitudinal row of large and deep punctures on the middle from a little behind the front margin to near the ante-basal transverse impression, the impression deep, wide, terminating laterally into the lateral constriction and bearing a distinct fovea in the middle. Scutellum small, gently narrowed posteriorly, truncated at the apex, very minutely but not thickly punctulate on the dorsum. Elytra elongate, much wider at the base than pronotum, slightly narrowed posteriorly, rounded at the apex; dorsum convex, rather flat on the middle, very strongly and regularly punctate in ten longitudinal rows on each elytron, the 4th and 9th rows connecting to each other at a little before the apex with a subtriangular raised area beyond it, with a short scutellar row of the similar large punctures, interstices of these regular rows of large punctures finely but sparsely punctulate on some portions. Claws very broad, obliquo-inwardly truncated at the apex.

**Length**: 3.0 - 4.0 mm.

**Loc. Distr.**- Heitô-Si, Takao-Syû (1 Ex., 22.V. 1930, Y. Miwa leg.); Is. Hôko-Tô (Pescadore Isls.) (2 Exs., V.1930, S. Minowa leg.).

**Gen. Distr.**- India, Formosa (including Pescadore Isls.), Loo-Choo and Japan proper (Kyûsyû).

## 21'. Lema (s. str.) downesii Baly var. melania Chûjô nov.

General colour yellowish brown, with elytra rather paler than the others, lustrous; antennae and labrum black, palpi and median areae of mandibles piceous, scutellum black, sutural and lateral margins of elytra rather widely piceous to black, with the lateral dark coloration abbreviated before the apex; underside and legs piceous to pitchy black, lustrous, with prosternum yellowish brown, metathorax black and last abdominal sternite, together with the posterior extremities of four basal ones, rather dark yellowish brown.

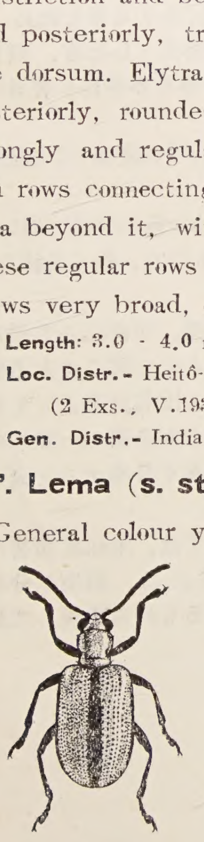

Fig. 25. *Lema* (s. str.) *downesii* Baly var. *melania* Chûjô nov.

Antennae with 4th segment distinctly longer than the 3rd, larger punctures on the dorsum of pronotum distinctly smaller than of the typical *downesii* Baly.

The present new variety differs from the typical *downesii* Baly in the characters described in above.

**Length**: 3.5 mm.

**Loc.Distr.**- Taihoku-Si, Taihoku-Syû (1 Ex., **Holotype**, 25.IV-1934, M. Chûjô leg.).

**Gen. Distr.**- Formosa.

## 摘　　要

## 臺湾産金花蟲科（昆蟲綱—鞘翅目）の形態分類学的研究

## 1 頸 長 金 花 蟲 亜 科

中 條 道 夫

（昆蟲学研究室）

臺湾産金花蟲科の形態分類学的研究の第1報として、頸長金花蟲亜科に関する研究結果を報告した。

本論文の重要な点の第一は、亞科の標徵として新たに翅脈と雄性生殖器の形態の組合せを最も重要な特徵として採り上げて其の他の外部形態上の特質と結び附けた事で、其の他從來一般に其の特徵を深く究めないで *Crioceris* 属の異名として取扱はれて居た *Lilioceris* 属を独立せしめ、且之を *Bradyceris*（新亞属）と *Lilioceris s. str.* の2亞属に分割した事、*Lema* 属を4亞属に区分する事を認め、又 E. HEINZE (1927) の *Hapsidolema* 属を批判して之を亞属 *Lema s. str.* の異名とした事、同じく E. HEINZE (1930) の亞属 *Bradylemoides* を亞属 *Bradylema* の異名とした事等も亦等しく著者の新見解で、夫々に対する要点を論述した。

本論文に記載された属種の数は、4属•21種•2変種で、1新属•1新亞属•5新種•2新変種•2未記錄種の記載を含んで居る。之等全属種の地理学的分布に就て見るに：

先づ属に於て、新属 *Mecoprosopus* は現在では臺湾に固有なものであるが、其の他の3属は何れも世界的に分布する。 *Mecoprosopus* 属は其の形態上東洋区系のものと考えられるもので、極く近緣な属—*Manipuria* JACOBY— が印度に分布する。

次に種に於ては、現在迄の処で臺湾に固有なもの14種、旧北区と共通なもの4種、東洋区と共通なもの3種であるが、國有種14に就いて夫等が旧北区系と東洋区系との何れに近緣たりやと言う点を考慮に入れると、前記の *Mecoprosopus* 属の存在と併せて、臺湾の頸長金花蟲亞科相は、旧北区系よりも東洋区系の色彩の方が稍々濃厚であると言う結果になる。猶亦、概して東洋区系のものが全島の一殊に中•南部の一低地帯に多く見出されるのに対し、旧北区系のものが中北部の山地帯に多く分布すると云ふ特性のある事も認められる。

本研究に対して色々と御指導御援助を賜はつた恩師•先学•知友の方々に対しては、本継続報告の最后に〝科〟に就いての報告を発表する時、其の第一頁に謝意を銘記したいと思う。又、属種の分布も〝科〟の報告の際に改めて全般的に述べ度く、更に参考文献も今後の報告に於けるものと重複して居るものが非常に多いので最后に一括記錄し度いと予定して居る。

昭和二十六年 一 月 十 日印刷
昭和二十六年 一 月 十 五日発行

香川県木田郡平井町
香 川 縣 立 農 科 大 学

高松市南瓦町四一六ノ二
印刷者　田 村 市 太 郎

高松市南瓦町四一六ノ二
印刷所　株式会社日本印刷所

VOLUME 2 NO. 2

# TECHNICAL BULLETIN OF THE KAGAWA-KEN AGRICULTURAL COLLEGE

CONTENT

CHÛJÔ, M. : A Taxonomic Study on the Chrysomelidae (Insecta-Coleoptera) from Formosa

I. Subfamily Criocerinae ........................................ 71—120

January, 1951

The Kagawa Agricultural College